



# Whitiau Scientific Reserve plants of interest



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Made on the New Zealand Plant Conservation Network website: [www.nzpcn.org.nz](http://www.nzpcn.org.nz)

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## INTRODUCTION

This book was compiled from information stored on the website of the New Zealand Plant Conservation Network ([www.nzpcn.org.nz](http://www.nzpcn.org.nz)).

This website was established in 2003 as a repository for information about New Zealand's threatened vascular plants. Since then it has grown into a national database of information about all plants in the New Zealand botanic region including both native and naturalised vascular plants as well as non-vascular plants and fungi.

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

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

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

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

## THE NEW ZEALAND BOTANIC REGION

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

## ABOUT THE NETWORK

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

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

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

That work has included:

- Training people in plant conservation
- Publishing plant books, reports and posters
- Raising money for the David Given Threatened Plant Research Trust to pay for plant conservation research scholarships
- Educating people about plant life through the Network website
- Connecting people through our website, the monthly newsletter, the Network conference and the annual general meeting

## WHAT IS A THREATENED PLANT?

The NZ Threatened Plant Committee was formed in 1991 and ever since then it has met at regular intervals to review the status of indigenous vascular plants. It is made up of a team of botanists that between them have an extensive knowledge of the native plants of New Zealand.

This committee applies a set of criteria to each native plant to determine its conservation status. The resulting list of species classified as threatened is published in the NZ Journal of Botany (see for example [de Lange et al. 2018](#)). The main threat categories used are: Extinct, Nationally Critical, Nationally Endangered and Nationally Vulnerable, Declining. Other categories used are: Recovering, Relict, Naturally Uncommon, Coloniser, Vagrant and Data Deficient. For vascular plants the threat status used in this book is taken from the ['Conservation status of New Zealand indigenous vascular plants, 2017'](#) by [de Lange et al. \(2018\)](#).

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

# Carex litorosa

## COMMON NAME

Sea Sedge

## SYNONYMS

*Carex littoralis* Petrie, *Carex australis* Kirk

## FAMILY

Cyperaceae

## AUTHORITY

*Carex litorosa* L.H.Bailey

## FLORA CATEGORY

Vascular – Native

## ENDEMIC TAXON

Yes

## ENDEMIC GENUS

No

## ENDEMIC FAMILY

No

## STRUCTURAL CLASS

Sedges

## NVS CODE

CARLIT

## CHROMOSOME NUMBER

2n = 48

## CURRENT CONSERVATION STATUS

2012 | At Risk – Declining | Qualifiers: RR

## PREVIOUS CONSERVATION STATUSES

2009 | At Risk – Declining

2004 | Serious Decline

## DISTRIBUTION

Endemic to North, South and Stewart Islands.

## HABITAT

Coastal in salty, brackish marshes and on sandy, tidal river banks.

## FEATURES

An upright sedge to 800 mm tall (but usually smaller), that forms pale green or reddish, dense tussocks with curly tops. Leaves are flat on one side, curved on the other and slightly serrated along the edge, 1.5 mm wide and about the same length as the flower stem. Flower stems are cylindrical and upright, with light brown spikes.

## SIMILAR TAXA

*Carex divisa*, which also grows in saltmarshes but has blue-grey leaves, and smaller, compact black spikes borne on long stems near the apex of the leaves of each tussock.

## FLOWERING

October to December

## FRUITING

December to April (but seedheads long persistent)



Awarua Bay, Southland. Photographer: Jesse Bythell



*Carex litorosa*. Photographer: Cathy Jones

## LIFE CYCLE

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

## PROPAGATION TECHNIQUE

Easy from fresh seed and by the division of whole plants. Very easy to grow in a range of substrates.

## THREATS

Habitat loss through coastal development. Encroachment by weeds is a serious problem in the North Island, especially from species such as spartina, tall fescue and Carex divisa.

## ETYMOLOGY

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

**litorosa**: From the Latin littus 'shore', meaning shore-loving or growing on the shore

## ATTRIBUTION

Fact Sheet prepared for NZPCN by P.J. de Lange 2 September 2003.

## REFERENCES AND FURTHER READING

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

## CITATION

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

## MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/carex-litorosa/>

# Coprosma acerosa

## COMMON NAME

Sand Coprosma

## FAMILY

Rubiaceae

## AUTHORITY

Coprosma acerosa A.Cunn.

## FLORA CATEGORY

Vascular – Native

## ENDEMIC TAXON

Yes

## ENDEMIC GENUS

No

## ENDEMIC FAMILY

No

## STRUCTURAL CLASS

Dicotyledonous Trees & Shrubs

## NVS CODE

COPACE

## CHROMOSOME NUMBER

2n = 44

## CURRENT CONSERVATION STATUS

2012 | At Risk – Declining | Qualifiers: DP

## PREVIOUS CONSERVATION STATUSES

2009 | At Risk – Declining | Qualifiers: DP

2004 | Not Threatened

## BRIEF DESCRIPTION

Sprawling yellowish small-leaved shrub inhabiting coastal areas. Twigs orange, slightly fuzzy at tip. Leaves narrow, small, with dark line down middle on the underside, in clusters of pairs scattered along twigs. Flowers tiny, with long protruding threads. Fruit white.

## DISTRIBUTION

Endemic. North, South, Stewart and Chatham Islands

## LIFE CYCLE

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

## THREATS

Not Threatened but rapidly becoming scarce in large parts of its range. Seems to resent dune reclamation and competition from marram grass (*Ammophila arenaria*).

## ETYMOLOGY

**coprosma:** From the Greek kopros 'dung' and osme 'smell', referring to the foul smell of the species, literally 'dung smell'

**acerosa:** From the Latin acus 'sharp', meaning sharp or pointed



Pouto, Northland. December. Photographer: Lisa Forester



An image of sand coprosma in fruit. Photographer: John Barkla

## REFERENCES AND FURTHER READING

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

## MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/coprosma-acerosa/>



# Discaria toumatou

## COMMON NAME

Matagouri

## SYNONYMS

None

## FAMILY

Rhamnaceae

## AUTHORITY

*Discaria toumatou* Raoul

## FLORA CATEGORY

Vascular – Native

## ENDEMIC TAXON

Yes

## ENDEMIC GENUS

No

## ENDEMIC FAMILY

No

## STRUCTURAL CLASS

Dicotyledonous Trees & Shrubs

## NVS CODE

DISTOU

## CHROMOSOME NUMBER

2n = 22

## CURRENT CONSERVATION STATUS

2018 | At Risk – Declining

## PREVIOUS CONSERVATION STATUSES

2012 | Not Threatened

2009 | Not Threatened

2004 | Not Threatened

## BRIEF DESCRIPTION

Spiky grey shrub with many zig-zagging long flexible twigs bearing long (up to 5cm long) green spines interspersed with small oval dark green leaves. Bark rough, broken into squares. Leaves 10-20mm long. Flowers small, white, inconspicuous. Fruit a dry, 3 sided capsule.

## DISTRIBUTION

Endemic. North and South Islands. In the North Island known from near Waiuku south to the southern Wairarapa and Wellington coastline. Very uncommon in the North Island. In the South Island mainly east of the main divide, appearing to avoid areas of high rainfall

## FLOWER COLOURS

White

## LIFE CYCLE

Seeds are dispersed by ballistic projection and water (Thorsen et al., 2009).



Quail Island. Photographer: John Barkla



Danseys pass, November. Photographer: John Smith-Dodsworth



## PROPAGATION TECHNIQUE

Easy from seed. Can be grown from cuttings but these can be slow to strike. Rather variable, and some North Island sand dune forms are entirely prostrate, forming trailing shrubs. An excellent hedge plant, with the added bonus that this species fixes atmospheric nitrogen, making it available for other plants.

## THREATS

Not Threatened for most of its range. However, very uncommon and under threat throughout the North Island, where it is now known from very few sites and viable populations.

## ETYMOLOGY

**discaria:** Disc bearing

**toumatou:** Derived from the Maori name tumamatakuru.

## WHERE TO BUY

Occasionally available from specialist native plant nurseries.

## REFERENCES AND FURTHER READING

Chrystall, L. 1976. Further record of matagouri in the North Island. Wellington Botanical Society Bulletin, 39: 47

Duguid, F. 1976. Matagouri at Herbertville. Wellington Botanical Society Bulletin, 39: 45

Elder, N.L. 1966. Matagouri in the North Island. Wellington Botanical Society Bulletin, 33: 5

Elder, N.L. 1967. Matagouri in the North Island - Part 2. Wellington Botanical Society Bulletin, 34: 19-20

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

Thorsen, M. J.; Dickinson, K. J. M.; Seddon, P. J. 2009. Seed dispersal systems in the New Zealand flora.

Perspectives in Plant Ecology, Evolution and Systematics 11: 285-309

## MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/discaria-toumatou/>

# Ficinia spiralis

## COMMON NAME

Pingao, golden sand sedge, pikao

## SYNONYMS

*Isolepis spiralis* A.Rich., *Desmoschoenus spiralis* (A.Rich.) Hook.f., *Anthrophyllum urvillei* Steudel, *Scirpus frondosus* Boeck, *Scirpus spiralis* (A.Rich.) Druce

## FAMILY

Cyperaceae

## AUTHORITY

*Ficinia spiralis* (A.Rich.) Muasya et de Lange

## FLORA CATEGORY

Vascular – Native

## ENDEMIC TAXON

Yes

## ENDEMIC GENUS

Yes

## ENDEMIC FAMILY

No

## STRUCTURAL CLASS

Sedges

## NVS CODE

FICSPI

## CHROMOSOME NUMBER

2n = 30

## CURRENT CONSERVATION STATUS

2012 | At Risk – Declining | Qualifiers: PD, RR

## PREVIOUS CONSERVATION STATUSES

2009 | At Risk – Relict | Qualifiers: CD, Inc, Sp

2004 | Gradual Decline

## DISTRIBUTION

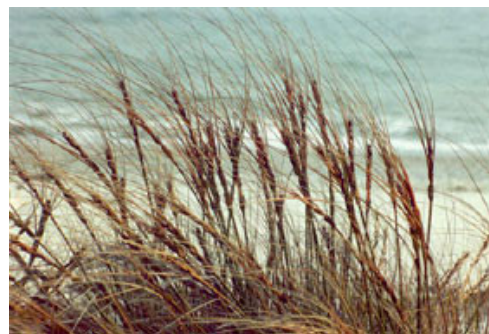
Endemic. New Zealand: North, South, Stewart and Chatham Islands.

## HABITAT

Coastal sand dune systems. It favours sloping and more or less unstable surfaces, growing mostly on the front face of active dunes but also on the rear face and rear dunes, provided that there is wind-blown sand. It can also grow on the top of sand hills. It is effective at trapping sand.



Parengarenga Harbour, East Beach.  
Photographer: John Sawyer



Mason Bay, Stewart Island. Photographer: John Sawyer

## FEATURES

Stout, yellow-green when fresh, golden when dry, shortly creeping plants with stiff culms and very harsh leaves. Rhizome lignaceous, 10–15 mm diameter, shortly creeping, covered by red-brown to brown, fibrous strands left from decaying leaf-sheaths. Culms numerous, 0.3–1.2 m tall, 2–4 mm diameter, erect, obtusely trigonous, very leafy at the base. Leaves numerous, ± = culms, 2–5 mm. wide, stiffly erect or weakly curved, coriaceous, linear, concavo-convex or ± channelled, margins and keel sharply denticulate, narrowed to a long, trigonous tip; sheaths submembranous, much broader than leaves, with numerous, red-brown veins. Inflorescence, paniculate 70–300 mm long, each panicle composed of c.12 confluent clusters of sessile spikelets, each cluster subtended by a rigid leaf-like bract adnate to the axis and broadening at base to an open sheath, lower bracts much exceeding inflorescence. Spikelets 4–5 mm. long, dark red-brown. Glumes coriaceous, rigid, broadly ovate, obtuse, distinctly nerved, finely mucronulate, the lower ones ± keeled. Nut 2.5–4.0 x 2.0–2.5 mm, broadly obovoid, concavo-convex, compressed, obtuse, dark brown, smooth and shining.

## SIMILAR TAXA

None. Easily recognised by the widely spreading rhizomatous growth habit, distinctive overall orange colouring of the plant, paniculate spiral seed heads, and by the possession of a gynophore (see taxonomic notes).

## FLOWERING

Spring and early summer

## FLOWER COLOURS

White

## FRUITING

Late summer

## PROPAGATION TECHNIQUE

Can be grown from fresh seed and cuttings. Fresh seed germinates easily but plants resent root disturbance, and they should be grown in root trainers. Although it will tolerate most soils and moisture regimes, it obviously does best in coastal situations within active sand dunes.

## THREATS

Competition from marram grass (*Ammophila arenaria*), dune stabilisation and compaction, harvesting, trampling, vehicle traffic and browsing animals. Because this species is wind-pollinated, individuals of small, isolated populations may not receive pollen during flowering, and therefore there will be no seed production. Browsing and trampling by sheep and horses; browsing of seedlings by possums; seed destruction by rodents; fire and insensitive harvesting.

## ETYMOLOGY

**ficinia**: Named after Heinrich David Auguste Ficus, 19th century German botanist

**spiralis**: From the Latin *spira* 'coil' or 'twist' and *-alis* 'resembling', resembling a twist or corkscrew, spiral-shaped

## TAXONOMIC NOTES

*Desmoschoenus* was recently (Muasya & de Lange 2010) submerged into the mainly South African genus *Ficinia* on the basis of sound molecular and morphological reasons. Based on multiple DNA markers *Desmoschoenus* was found to be firmly embedded within *Ficinia*, that, along with its possession of a gynophore (a small cup like structure found at the base of ovary/nut otherwise known only from *Ficinia*) were considered firm reasons for its merger.

Furthermore *Desmoschoenus* closely resembles those *Ficinia* which the molecular study placed it with. Read more about this research: [A new name and genus for pingao](#)

## VIDEO STORY

[Pingao](#) - Watch the TVNZ Meet the Locals video.

## ATTRIBUTION

Fact sheet prepared for NZPCN by P.J. de Lange (6 August 2006). Description adapted from Moore & Edgar (1970).

## REFERENCES AND FURTHER READING

Moore, L.B.; Edgar, E. 1970: Flora of New Zealand. Wellington, Government Printer

Muasya, A.M.; de Lange, P.J. 2010: *Ficinia spiralis* (Cyperaceae) a new genus and combination for *Desmoschoenus spiralis*. *New Zealand Journal of Botany* 48: 31–39.

**CITATION**

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

**MORE INFORMATION**

<https://www.nzpcn.org.nz/flora/species/ficinia-spiralis/>

# Isolepis basilaris

## COMMON NAME

Pygmy clubrush

## SYNONYMS

*Scirpus basilaris* (Hook.f.) C.B.Clarke, *Isolepis novae-zelandiae* Colenso

## FAMILY

Cyperaceae

## AUTHORITY

*Isolepis basilaris* Hook.f.

## FLORA CATEGORY

Vascular – Native

## ENDEMIC TAXON

Yes

## ENDEMIC GENUS

No

## ENDEMIC FAMILY

No

## STRUCTURAL CLASS

Sedges

## NVS CODE

ISOBAS

## CURRENT CONSERVATION STATUS

2018 | At Risk – Declining

## PREVIOUS CONSERVATION STATUSES

2012 | Threatened – Nationally Vulnerable | Qualifiers: EF, RR, Sp

2009 | Threatened – Nationally Endangered | Qualifiers: De

2004 | Serious Decline

## DISTRIBUTION

Endemic. North and South Islands from Hawkes Bay to Southland.

## HABITAT

Coastal, lowland to upland habitats, up to 700m altitude. On damp, sandy or silty margins of lagoons, tarns, ephemeral lakes and rivers, freshwater or brackish.

## FEATURES

Minute, moss-like, densely tufted plant forming circular patches 10–100 mm diameter and up to 60 mm tall, bright green above, reddish brown below. Rhizome < 1 mm. diameter, much branched; sheathing bract at each node loose, membranous, with red nerves. Culms < 1.5 rarely up to 30 mm long, < 0.5 mm diameter. Leaves 1–2 on each branch, much > culms, 5–60 mm long, < 0.5 mm wide, setaceous, plano-convex; sheath membranous, red-nerved. Inflorescence an apparently lateral, single spikelet, or rarely 2, hidden among the leaves, pale green, occasionally with red markings; subtending bract leaf-like, channelled, very much > culm from which it arises and almost = leaves. Spikelets 2.5–3.5 x 1.5–2.0 mm, elliptical or oblong. Glumes 1–2 mm. long, ovate, elliptical, obtuse, white and membranous, or with patches of red on the sides; keel thick, green, occasionally slightly excurrent. Hypogynous bristles 0. Stamens 2–3. Style-branches 2–3. Nut c.0.5 x 0.5 mm, c. 2/3 length of glume, obovoid to suborbicular, plano-convex, dorsally rounded, noticeably apiculate, red-brown to dark brown, almost black, surface often shining but distinctly reticulate.



Lake Wairarapa. Nov 2011. Photographer: Jeremy Rolfe



Close up of plants. Photographer: Andrew Townsend

## SIMILAR TAXA

*Isolepis caligenis*. *Isolepis basilaris* has 1-2 leaves per tuft, very short flower stems with spikelets hidden amongst leaves and very dark brown nuts, flat on one side. *I. caligenis* has 2-5 leaves per tuft, longer flower stems and pearly grey nuts, rounded on both sides. Occasionally *Isolepis basilaris* with elongated flower stems is difficult to distinguish from *I. caligenis* if fruit is immature.

## FLOWERING

September to November

## FRUITING

December to April (but seedheads long persistent)

## LIFE CYCLE

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

## PROPAGATION TECHNIQUE

Easily grown from fresh seed and division of whole plants.

## THREATS

Domestic and feral cattle, sheep, horses and pigs are the serious threats throughout this species range, mainly through browse, trampling, and facilitating the spread of weeds. Competition from taller vegetation is significant at many sites. Coastal development (e.g., road widening) and erosion are further common threats to most populations. In some locations plants are threatened by 4-wheel drive vehicles.

## ETYMOLOGY

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

**basilaris**: From Latin 'basis' borrowed originally from Greek, meaning basal

## WHERE TO BUY

Not commercially available but plants are held by several Botanic Gardens and specialist growers.

## 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-basilaris/>



# Libertia peregrinans

## COMMON NAME

New Zealand iris, mikoikoi

## SYNONYMS

*Libertia peregrinans* agg.

## FAMILY

Iridaceae

## AUTHORITY

*Libertia peregrinans* Cockayne et Allan

## FLORA CATEGORY

Vascular – Native

## ENDEMIC TAXON

Yes

## ENDEMIC GENUS

No

## ENDEMIC FAMILY

No

## STRUCTURAL CLASS

Monocotyledonous Herbs

## NVS CODE

LIBPER

## CHROMOSOME NUMBER

2n = 114

## CURRENT CONSERVATION STATUS

2012 | Threatened – Nationally Vulnerable | Qualifiers: DP

## PREVIOUS CONSERVATION STATUSES

2009 | Threatened – Nationally Vulnerable | Qualifiers: DP

2004 | Gradual Decline

## DISTRIBUTION

Endemic. New Zealand: North (from Piha (now historic) to Wellington), South (throughout), Stewart and Chatham Islands.

## HABITAT

A primarily coastal or lowland species of sandy, peaty or pumiceous soils. It may be found growing in dune slacks and swales, on the margins of swamps, in open poorly draining ground under scrub, and on the Chatham Islands within *Sporadanthus*-dominated bogs. A distinctive upland form is known from the leaf litter within mainly beech forests, and what appears to have been this species once grew inland near Waiouru, on the Central Volcanic Plateau.



Cultivated. Photographer: John Barkla



Puponga Farm Park, NW Nelson Coast.  
Photographer: Simon Walls

## FEATURES

Plants consisting of leafy fans crowded or emerging at intervals from far-spreading horizontal stolons, c. 3 mm diameter, yellow in colour. Leaves 130–700 × 3–9 mm, the two surfaces similar; often ± copper coloured where exposed to full sun; nerves many, the median ones crowded and coloured red or orange; margins usually not scabrid; leaf in transverse section convex lens-shaped, two rows of vascular bundles present centrally, marginal vascular bundles present, sclerenchyma present on inside of leaf sheath. Peduncles short, inflorescences usually not carrying flowers or fruits above leaves. Panicle narrow, but usually closely branched, lower bracts long (40–170 mm), lanceolate, often brown, upper bracts shorter and brown, occurring singly; 1–7 flowers per branch. Pedicels stout, c.14–40 mm long, glabrous. In flower bud, perianth often brownish externally, similar size or slightly larger than ovary. Flowers 10–30 mm diameter; tepals all white internally, widely patent; outer tepals usually > ½ the length of the inner, narrower, oblong-elliptic or oblong, flattened, without apiculus; inner tepals obovate-elliptical, shortly unguiculate, usually leaving most of outer tepals visible, cleft present at tip. Staminal filaments very shortly connate; anthers c.3.0–3.5 mm long, dark yellow-brown. Ovary cupiform, green; style branches narrowly winged, pointing outwards. Capsule 6–15 mm long, 4–10 mm diameter, ovoid-barrel-shaped, ripening from green to orange, yellow, or black on maturity, often indehiscent for a year after ripening, seeds released after capsule disintegrates. Seeds c.1.0–1.5 mm diameter, subglobose, surface texture reticulate-foveolate, orange or orange-brown.

## SIMILAR TAXA

*Libertia peregrinans* differs from *L. grandiflora*, *L. ixioides*, *L. mooreae*, and *L. micrantha* by its elongate rhizomes. It also differs from *L. grandiflora* and *L. mooreae* by its short inflorescences, oblong petals, large sepals, and indehiscent capsules. It differs from *L. ixioides* by its smaller, indehiscent capsules and red or orange raised leaf veins, and from *L. micrantha* by its taller size, leaf anatomy, and flower form. *Libertia edgariae* and *L. cranwelliae* also have elongate rhizomes, but *L. edgariae* has longer inflorescences, orbicular petals, small sepals, and green or yellow leaf veins, while *L. cranwelliae* has larger capsules which turn orange on ripening, and leaves that are straight and turn yellow in summer.

## FLOWERING

October - January

## FLOWER COLOURS

White, Yellow

## FRUITING

January - February

## PROPAGATION TECHNIQUE

Very easy from the division of whole plants. Can be grown from fresh seed which usually germinates quickly. An attractive and commonly cultivated species, popular because of its stunning dark orange foliage.

## THREATS

Formerly widespread this species has now declined or gone extinct from large parts of its former range and it is now only moderately common in some parts of the western and southern South Island, and on Stewart and Chatham Islands. Its decline can be attributed to widespread habitat loss through coastal development and weed encroachment, cattle, sheep, horse and rabbit browse. Several sites, including the type locality were destroyed by their use as rubbish dumps. Inland populations on the Central Volcanic plateau seem to have been lost through a combination of over collecting and competition from weeds.

## ETYMOLOGY

**libertia:** Named after Marie-Anne Libert, (1782–1865) born & died in Malmedy, province of Liège, Belgium; botanist and mycologist

**peregrinans:** Wandering

## ATTRIBUTION

Description modified from Blanchon et al. (2002)

## REFERENCES AND FURTHER READING

Blanchon, D.J.; Murray, B.G.; Braggins, J.E. 2002: A taxonomic revision of *Libertia* (Iridaceae) in New Zealand. *New Zealand Journal of Botany* 40: 437–456.

**MORE INFORMATION**

<https://www.nzpcn.org.nz/flora/species/libertia-peregrinans/>

# Mazus novaezeelandiae subsp. impolitus f. impolitus

## FAMILY

Mazaceae

## AUTHORITY

*Mazus novaezeelandiae* subsp. *impolitus* Heenan f. *impolitus*

## FLORA CATEGORY

Vascular – Native

## ENDEMIC TAXON

Yes

## ENDEMIC GENUS

No

## ENDEMIC FAMILY

No

## STRUCTURAL CLASS

Dicotyledonous Herbs other than Composites

## CHROMOSOME NUMBER

$2n = 38$

## CURRENT CONSERVATION STATUS

2018 | Threatened – Nationally Endangered

## PREVIOUS CONSERVATION STATUSES

2012 | Threatened – Nationally Vulnerable | Qualifiers: DP

2009 | Threatened – Nationally Vulnerable | Qualifiers: DP

2004 | Serious Decline

## DISTRIBUTION

Endemic to New Zealand. North and South Island, Marlborough, Canterbury and Otago.

## HABITAT

*M. novaezeelandiae* subsp. *impolitus* prefers coastal sites, particularly damp hollows and sand flats, amongst sandy turf and coastal pasture species; but has also been found inland on river gravels in Otago. Swamp and stream margins, soggy ground, river flats beneath tawa and kahikatea.

## FEATURES

A perennial, creeping herb forming compact, leafy rosettes, leaves spoon-shaped, dark green to yellow-green 20–75 mm long. The margins of the leaves may be pigmented brown. The erect inflorescence is often held well above the foliage and may bear from 1 to 5 Mimulus-like flowers, these are white with a yellow throat. It is distinguished from subsp. *novaezeelandiae* by its dull green leaves that are hairless or only sparsely hairy.

## SIMILAR TAXA

*Mazus pumilio* which has blue or lilac flowers and a finely toothed leaf margin. This predominantly Australian species is known in New Zealand from only one site in Northland, but is now sold by many garden centres as *M. novaezeelandiae*.

## FLOWERING

Flowering occurs in November.

## FLOWER COLOURS

White, Yellow



Wanaka. Photographer: John Barkla



Dwarf musk. Photographer: Andrew Townsend

## FRUITING

Fruiting capsules are found from December to April.

## THREATS

Very susceptible to disturbance, habitat clearance and modification including stock trampling.

## ETYMOLOGY

**mazus:** Tear (after protuberance on throat of flower)

**novaezeelandiae:** Of New Zealand

**impolitus:** Unpolished, matt

## Where To Buy

## ATTRIBUTION

Fact Sheet prepared for NZPCN by P.J. de Lange (30 August 2003). For more information see Heenan (1998)

## REFERENCES AND FURTHER READING

Heenan, P. B. 1998: *Mazus novaezeelandiae* (Scrophulariaceae): taxonomy, distribution, habitats, and conservation. *New Zealand Journal of Botany* 36(3): 407-416.

## CITATION

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

<https://www.nzpcn.org.nz/flora/species/mazus-novaezeelandiae-subsp-impolitus-f-impolitus/> (Date website was queried)

## MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/mazus-novaezeelandiae-subsp-impolitus-f-impolitus/>

# Mentha cunninghamii

## COMMON NAME

New Zealand mint, hihoi

## SYNONYMS

*Mentha consimilis* Colenso

## FAMILY

Lamiaceae

## AUTHORITY

*Mentha cunninghamii* Benth.

## FLORA CATEGORY

Vascular – Native

## ENDEMIC TAXON

Yes

## ENDEMIC GENUS

No

## ENDEMIC FAMILY

No

## STRUCTURAL CLASS

Dicotyledonous Herbs other than Composites

## NVS CODE

MENCUN

## CHROMOSOME NUMBER

2n = 72

## CURRENT CONSERVATION STATUS

2012 | At Risk – Declining | Qualifiers: DP

## PREVIOUS CONSERVATION STATUSES

2009 | Not Threatened

2004 | Not Threatened

## DISTRIBUTION

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

## HABITAT

Coastal to alpine. Sparse component of grassland and other open places such as cliffs, river banks, lake sides, grey scrub, occasionally in swampy ground.

## FEATURES

Gynodioecious, rhizomatous to ± stoloniferous, perennial forming loose patches up to 300 mm across; stems sparse to numerous, very slender, purple to purple-red, puberulent (especially on angles), initially ± creeping, subscandent or ascending at tips, usually much branched. Leaves bright green to yellow-green, sessile or with short hairy petioles 2-4 mm long. Lamina 2-15 × 2-15 mm, broad-ovate to suborbicular, smooth, entire or shallowly crenate, gland-dotted, mostly glabrous except for nerves on lower surface; base broad-cuneate or truncate; apex rounded. Flowers axillary, fragrant, solitary or in clusters of 1-3; pedicels prominent, puberulent. Calyx 3-4 mm long, narrow-campanulate to campanulate, villous, gland-dotted; teeth narrow-triangular, ciliate, much < tube, acute. Corolla c.6 mm long, white, glabrous; tube not exerted; lobes spreading, subequal; uppermost lobe ± 2-fid. Stamens scarcely exerted. Nutlets 1.0-1.3 mm long, ± broad-ellipsoid, slightly angled, smooth.



In cultivation. Mar 2007. Photographer: Jeremy Rolfe



cult. ex Awhitu Peninsula, 11 Dec 2004.  
Photographer: Mike Wilcox



## SIMILAR TAXA

Quite unlike any of the adventive *Mentha* species in NZ. When examining closely a sward of native turf-forming species, the presence of *M. cunninghamii* is often detected by its mint odour.

## FLOWERING

October – April

## FLOWER COLOURS

White

## FRUITING

October – June

## PROPAGATION TECHNIQUE

Easily grown from rooted pieces and fresh seed. Needs full sun to flourish. Once established tolerant of a range of conditions. An attractive pot plant.

## THREATS

Habitat degradation by livestock, irrigation, drainage; weed competition

## ETYMOLOGY

**mentha:** Mint

**cunninghamii:** Named after Allan Cunningham (1791 – 1839) who was an English botanist and explorer, primarily known for his travels to Australia (New South Wales) and New Zealand to collect plants. Author of *Florae Insularum Novae Zelandiae Praecursor*, 1837-40 (Introduction to the flora of New Zealand).

## ATTRIBUTION

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

## CITATION

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

## MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/mentha-cunninghamii/>

# Microtis unifolia

## COMMON NAME

Onion-leaved orchid, microtis

## SYNONYMS

*Ophrys unifolia* Forst.f.; *Epipactis porrifolia* Schwartz; *Microtis banksii* Hook; *Microtis longifolia* Col.; *Microtis papillosa* Col.

## FAMILY

Orchidaceae

## AUTHORITY

*Microtis unifolia* (G.Forst.) Rchb.f.

## FLORA CATEGORY

Vascular – Native

## ENDEMIC TAXON

No

## ENDEMIC GENUS

No

## ENDEMIC FAMILY

No

## STRUCTURAL CLASS

Orchids

## NVS CODE

MICUNI

## CHROMOSOME NUMBER

2n = 88

## CURRENT CONSERVATION STATUS

2012 | Not Threatened

## PREVIOUS CONSERVATION STATUSES

2009 | Not Threatened

2004 | Not Threatened

## DISTRIBUTION

Indigenous. In New Zealand present on the Kermadec, Three Kings, North, South, Stewart and Chatham Islands. Exact New Zealand distribution unclear due to confusion with an allied, later flowering entity. Present also in Australia, Norfolk Island, New Caledonia, Indonesia, the Philippines, Japan and China.

## HABITAT

Coastal to montane. Widespread in mainly disturbed or successional habitats. Common in urban areas in lawns, verges, roadside banks and cuttings and even amongst moss filled crevices on old buildings.



Microtis. Photographer: DoC



Kennedy Bay, November. Photographer: John Smith-Dodsworth

## FEATURES

Terrestrial, glabrous, colony forming, fleshy, tuberous bright green to dark green perennial herb. Plants at flowering up to 1 m tall. Tubers globose to ovoid. Stem erect, terete, often striated. Leaf solitary, usually overtopping inflorescence, bright green to dark green, rarely tinged with red near base, closely sheathing stem for much of length, linear-terete, hollow, up to 800 mm long. Inflorescence a raceme up to 300 x 10 mm. Flowers 6-100, up to 4 mm diameter, shortly-stalked and closely spaced, more or less overlapping. Perianth green, segments up to 2.5 mm long, widely spreading, thick and fleshy. Dorsal sepal 3 mm long, broadly ovate, erect or projecting forwards, cucullate, concave, column-embracing, acute with apex usually slightly turned upwards, smaller than ovary at flowering; lateral sepals much shorter and narrower, acute, strongly deflexed, apices tending to coil under. Petals shorter still, obtuse, erect, usually partially hidden under dorsal sepal. Labellum sessile, up to 2.5 mm long, green or yellow-green, oblong, sharply deflexed or decurved, pinched in at about mid-length to form a slight obvious waste; apex truncate or slightly emarginate, not apiculate though often folded to appear so; margin papillose and usually also crenate and undulate; anterior callus variously developed, verrucose, rather irregular, often raised on a rounded ridge; basal calli dark green, oval, prominent, and usually continuous at sides with narrow band of callus behind transverse, silt-like (not pouched) furrow; labellum standing away from ovary at a very narrow angle. Column short, obtuse, base of column about as broad as stigma, wings mostly membranous throughout. Anther terminal, erect, situated above stigma, hemispherical, pollinia spheroidal, pollen granular. Stigma broadly ovate; rostellum ovate Capsules broadly ovoid, ovoid-ellipsoid, brown when ripe.

## SIMILAR TAXA

Distinguished from *M. parviflora* by the more or less oblong rather than triangular labellum. *Microtis oligantha* is similar but has fewer flowers (up to 10 cf. up to 100); the dorsal sepal of *M. unifolia* is acute and the apex usually sharply uptilted rather than obtuse with the apex not tilted upwards; *M. oligantha* has a short-oblong to almost quadrate labellum with shallowly crenate or undulate margins, *M. unifolia* has a long-oblong labellum usually narrowed at mid-length, and with deeply crenate and unundulose margins. The basal calli of *M. oligantha* are indistinct and tabular, while those of *M. unifolia* are oval and prominent.

## FLOWERING

August - November

## FLOWER COLOURS

Green

## FRUITING

October - March

## PROPAGATION TECHNIQUE

Easily grown and inclined to become invasive. Often present as a pot contaminant in nurseries.

## ETYMOLOGY

**microtis:** Tiny eared

**unifolia:** Single leaved

## WHERE TO BUY

Not commercially available

## TAXONOMIC NOTES

A distinctive late flowering form, which flowers from December - April appears to be unnamed and worthy of specific recognition. NZPCN has not included that entity in this Fact Sheet.

## ATTRIBUTION

Fact Sheet prepared for NZPCN by P.J. de Lange 14 April 2007. 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.

## CITATION

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

**MORE INFORMATION**

<https://www.nzpcn.org.nz/flora/species/microtis-unifolia/>

# Pimelea villosa

## COMMON NAME

Sand daphne, autetaranga, toroheke, sand pimelea

## SYNONYMS

*Gymnococca arenaria* Fisch. et Mey., *Pimelea arenaria* A.Cunn., *P. villosa* subsp. *arenaria* (A.Cunn.) C.J.Burrows, *Pimelea dasyantha* Colenso

## FAMILY

Thymelaeaceae

## AUTHORITY

*Pimelea villosa* Sol. ex Sm.

## FLORA CATEGORY

Vascular – Native

## ENDEMIC TAXON

Yes

## ENDEMIC GENUS

No

## ENDEMIC FAMILY

No

## STRUCTURAL CLASS

Dicotyledonous Trees & Shrubs

## CURRENT CONSERVATION STATUS

2012 | At Risk – Declining | Qualifiers: PD, RF

## PREVIOUS CONSERVATION STATUSES

2009 | At Risk – Declining | Qualifiers: PD, RF

2004 | Gradual Decline

## BRIEF DESCRIPTION

Much-branched sprawling shrub with hairy branches (often mostly covered by sand) bearing pairs of pointed leaves that have long hairs on the underside, hairy white flowers and black, red, pink or white fruit inhabiting sandy areas south to about Christchurch and the Chatham Islands. Leaves 5-15mm long by 3-7mm wide.

## DISTRIBUTION

Endemic. North, South and Rekohu (Chatham Island). Abundant on Rekohu.

## HABITAT

Confined to sand dunes and associated swales and flats - usually in free draining sites but sometimes bordering streams in places prone to sudden flooding. On Rekohu (Chatham Island) this species often extends outside these habitats onto the sandy peat soils that were once forest and are now mostly pasture, and in these places it sometimes extends into dune forest remnants. It can be very common in pasture there probably because the soils are free draining and sandy and also because it is toxic and so cattle and sheep will not eat it. On the southern tablelands it is sometimes found within clears (on shallow peat soils) where it grows with other plants typical dune country such as *Coprosma acerosa*. Unusually for this species around Te Whanga it sometimes grows on limestone outcrops.



*Pimelea arenaria*. Photographer: John Sawyer



Riversdale. Nov 2006. Southern variant.  
Photographer: Jeremy Rolfe

## FEATURES

A medium-sized to large, much-branched, erect to decumbent, sometimes prostrate shrub; stems stout to slender, flexible to stiff, to 1.5 m long, usually shorter, sometimes developing adventitious roots if buried by sand. Young branchlets densely covered in short to long, white, or rarely yellowish, appressed hair. Internode length 0.8–10.0 mm; older stems sparsely hairy, or hairless, brown. Node buttresses short (0.25 mm), lunate, glabrous, or with short hairs, but masked by internode hair on young stems; not prominent on leafless stems. Leaves decussate, ascendant or spreading, then often deflexed, imbricate or distant, on short (0.2–0.8 mm) often red petioles. Lamina 5–15 mm long × 3–7 mm wide, broad-elliptic to broad-ovate, flat; obtuse, or acute, base cuneate. Upperside of leaf glaucous to medium green, usually glabrous, but young leaves sometimes sparsely hairy, above. Lower sides and margins are densely covered by appressed white to dull white or sometimes yellowish hair; midvein not prominent. Stomata on both leaf surfaces. Inflorescences terminal on branchlets, 3–7-flowered. In some individuals grouped in clusters of 2 or more. Receptacles very hairy. Involucral bracts 4, of similar size to, or smaller than, adjacent ordinary leaves (8–10 × 5–7 mm), broad-elliptic to broad-ovate, densely hairy below, usually glabrous above but sometimes with a few hairs on that side. Plants gynodioecious. Flowers white or sometimes cream, on short pedicels (0.5 mm); tube and calyx lobes very hairy outside, inside hairless or with a few hairs in the ovary portion, lobes open in ascendant or salverform fashion. Female tube 4–5.5 mm long, ovary portion 3–4.5 mm, calyx lobes 2.2 × 2.0 mm; hermaphrodite tube 5–7 mm, ovary portion 3.5–5 mm, calyx lobes 2.5–2.7 × 2–2.5 mm. Anther filaments short, inserted at mouth of tube; anther yellow. Ovary partly or completely hair-covered. Fruits ovoid, fleshy, dark purple-black, red, pink or white, opaque, 5.2 × 4.2 mm. The tube breaks off irregularly as the fruit ripens. Seeds 4 × 2.2 mm. Description based on Burrows (2009)

## SIMILAR TAXA

A very distinctive shrub, the erect, open-branching habit, small oblong to sub-orbicular close-set leaves, and restriction to coastal sand dunes and swales set it apart from all other *Pimelea* species. The treatment offered here includes plants with a lower, more spreading shrub habit and more widely spaced, longer and narrower spreading leaves (these forms are treated by de Lange et al. (2009) as *Pimelea* aff. *arenaria* (AK 216133; Southern New Zealand), and they were treated as subsp. *arenaria* by Burrows (2009), though circumscription of the subspecies in that paper is better regarded as pro parte because Burrow (2009) included elements of *P. villosa* s.s. within it (see comments on taxonomy below)

## FLOWERING

September - March

## FLOWER COLOURS

Cream, White

## FRUITING

October - April

## PROPAGATION TECHNIQUE

Easy from semi-hardwood cuttings. Will germinate readily and swiftly when seed is fresh (Nan Pullman, pers. comm.).

## THREATS

Threatened throughout its range (except possibly Rekohu (Chatham Island) by competition from marram grass; trampling by cattle, sheep and horses; browsing of seedlings by possums; seed destruction by rodents; vehicle damage and fire. More worryingly it has been observed that fruiting plants are now rarely seen over large parts of its range despite apparently good sex ratios within populations. It is suspected that the low fruit set being observed is due to the decline of and perhaps loss from some areas of pollinators. Further study is needed to confirm this. Although treat in the broad sense here the southern variant (*Pimelea* aff. *arenaria* (AK 216133; Southern New Zealand)) is by far the less common and more threatened of the two forms.

## ETYMOLOGY

**pimelea:** *Pimeleoides* means “resembling *Pimelea*”, a genus in the family Thymelaeaceae (Greek, -oides = resembling, like).

**villosa:** From Latin (*villus*) meaning shaggy or hairy.



## TAXONOMY

Burrows (2009) reinstated the earlier legitimate and effectively published name *Pimelea villosa* for the species long known as *Pimelea arenaria* A.Cunn. In the process he recognised a new subspecies - *P. villosa* subsp. *arenaria* (A.Cunn.) C.J.Burrows based on the type of *P. arenaria* collected from the Hokianga. This subspecies was meant to encompass the southern variant recognised by many other New Zealand botanists (a point unacknowledged by Burrows (2009)) and even named at species rank as *P. dasyantha* Colenso. NZPCN does not recognise subsp. *arenaria* because the type suite of that subspecies encompasses shade and sun forms of *P. villosa*. Shaded plants of *P. villosa* s.s. tend to lose their imbricating smaller leaves, and adopt a laxer growth habit with larger leaves (this also happens in cultivation) - so approaching the southern variant. However these shade plants of *P. villosa* still retain the taller growth habit typical of *P. villosa* s.s. and not of the southern variant. Further the situation on the Chathams is not as described by Burrows (2009) either - whereby he stated that both subspecies occur there, overlap and hybridise - that observation stems from confusion over shade and sun plants of *P. villosa* s.s. It is important to appreciate that Burrows had not undertaken field work on those islands and based his decisions on often inadequately labelled herbarium specimens. It is the view of both P. J. de Lange & M. J. Thorsen (*pers. comm.*) who have spent considerable time on these islands that all plants there are *P. villosa* s.s. Lastly because Burrows (2009) included elements of *P. villosa* s.s. within his circumscription of *P. villosa* subsp. *arenaria*, and also used as type, material that is referable to *P. villosa* s.s., subsp. *arenaria* is treated here as a synonym of *P. villosa* s.s. Further research into the natural variation of *P. villosa* throughout New Zealand, using molecular techniques is needed to adequately address the status of *P. villosa* s.s. and the southern variant. Finally contrary to Burrows (2009) the southern variant (his "subsp. *arenaria*") is not known to be sympatric with *P. villosa* s.s. (though it comes close at Kawhia). Currently this variant is still only known from Kawhia and the Hawke's Bay south.

## ATTRIBUTION

Fact Sheet by P.J. de Lange (1 November 2009). Description based on: Burrows (2009).

## REFERENCES AND FURTHER READING

- Burrows, C.J. 2009: Genus *Pimelea* (Thymelaeaceae) in New Zealand 3. The taxonomic treatment of six endemic hairy-leaved species. *New Zealand Journal of Botany* 47: 325-354.
- de Lange, P.J.; Norton, D.A.; Courtney, S.P.; Heenan, P.B.; Barkla, J.W.; Cameron, E.K.; Hitchmough, R.; Townsend, A.J. 2009: *Threatened and uncommon plants New Zealand Journal of Botany* 47: 61-96.
- Merrett, M. 2005. The lowdown on *Pimelea arenaria*. *Wellington Botanical Society Bulletin* 49: 3-6

## CITATION

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

## MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/pimelea-villosa/>

# Schoenus nitens

## SYNONYMS

*Chaetospora nitens* R.Br.; *Scirpus nitens* (R.Br.) Boeck., *Schoenus nitens* (R.Br.) Roem. et Schult. var. *nitens*

## FAMILY

Cyperaceae

## AUTHORITY

*Schoenus nitens* (R.Br.) Roem. et Schult.

## FLORA CATEGORY

Vascular – Native

## ENDEMIC TAXON

No

## ENDEMIC GENUS

No

## ENDEMIC FAMILY

No

## STRUCTURAL CLASS

Sedges

## NVS CODE

SCHNTE

## CHROMOSOME NUMBER

2n = 74

## CURRENT CONSERVATION STATUS

2012 | Not Threatened

## PREVIOUS CONSERVATION STATUSES

2009 | Not Threatened

2004 | Not Threatened

## DISTRIBUTION

Indigenous. North, South and Chatham Islands. Also in Australia and New Guinea. In New Zealand abundant from about Whatipu south to Wellington, Scarce in the South Island. Abundant on the main Chatham Island.

## HABITAT

Coastal. A species of damp ground within sand flats, dune swales, and the margins of tidal creeks, brackish swamps, lagoons and ponds.

## FEATURES

Rhizomatous, tufted rush-like sedge. Rhizomes lignaceous, up to 1.5 mm diameter, loosely covered by large, membranous, overlapping scales. Culms 10-400 mm long, slightly greater than 0.5 mm diameter, dark green, red-green to greenish brown, wiry, erect, striated, unbranched, densely tufted or widely spaced along rhizome. Leaves less than culms, upper leaves alternate, rigidly setaceous, semi-terete, margins rarely scabrid towards leaf apex; basal leaves reduced to red-purple, grooved, mucronate sheaths. Inflorescence terminal, capitate with crowded sessile spikelets, subtending bract greater than inflorescence. Spikelets (2-)4-many, 2-5 mm long, 2-3-flowered. Glumes 5-7, bright chestnut-brown with green median nerve, 2-3 lowest smaller, empty. Hypogynous bristles 6, usually > nut, yellow-brown and scabrid towards the apex, often branched and basally plumose with long white hairs. Stamens 3. Style Branches 3. Nut ovoid to elliptical-oblong, 1.5 mm long, light grey-brown to red-brown, smooth, glossy, surface cells minute (appearing as dimples), angles scarcely thickened.



Wairarapa coast. Jan 2011. Photographer: Pat Enright



Wairarapa coast. Jan 2011. Photographer: Pat Enright

### **SIMILAR TAXA**

*Schoenus concinnus* (Hook.f.) Hook.f. is somewhat similar but differs by its finer culms, more densely tufted growth habit, smaller stature, often solitary spikelets (there may occasionally be three spikelets), subacute rather than obtuse glumes, and yellow-brown rather than grey-brown to red-brown, larger nut (1.5-2.0 mm cf. 1.5 mm long). *Schoenus nitens* differs from the other rush-like species by having well developed leaves.

### **FLOWERING**

October - February

### **FRUITING**

December - July

### **PROPAGATION TECHNIQUE**

Easily grown from the division of established plants and from fresh seed. Prefers a damp, well drained soil in full sun.

### **ETYMOLOGY**

**schoenus:** Rush

### **WHERE TO BUY**

Not commercially available

### **ATTRIBUTION**

Description adapted from Moore and Edgar (1970).

### **REFERENCES AND FURTHER READING**

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

### **MORE INFORMATION**

<https://www.nzpcn.org.nz/flora/species/schoenus-nitens/>

# Sebaea ovata

## COMMON NAME

Sebaea

## SYNONYMS

*Exacum ovatum* Labill., *Gentiana ovata* Dietr

## FAMILY

Gentianaceae

## AUTHORITY

*Sebaea ovata* (Labill.) R.Br.

## FLORA CATEGORY

Vascular – Native

## ENDEMIC TAXON

No

## ENDEMIC GENUS

No

## ENDEMIC FAMILY

No

## STRUCTURAL CLASS

Dicotyledonous Herbs other than Composites

## NVS CODE

SEBOVA

## CHROMOSOME NUMBER

$2n = c.54$

## CURRENT CONSERVATION STATUS

2012 | Threatened – Nationally Critical | Qualifiers: CD, DP, EF, SO

## PREVIOUS CONSERVATION STATUSES

2009 | Threatened – Nationally Critical | Qualifiers: CD, SO, EF

2004 | Threatened – Nationally Critical

## DISTRIBUTION

Indigenous. In New Zealand formerly known from both North and South Islands, now confined to two natural populations in the North Island near Wanganui, and two deliberately established populations on the remote Pouto Peninsula, near Dargaville. Present also in Australia (South Australia, Victoria, New South Wales and Tasmania) where it is very common.

## HABITAT

Coastal. Associated with damp, sparsely-vegetated dune slacks, depressions, and associated sand plains. In Australia more widespread, ranging from the coast inland to montane forest, often but not exclusively in seasonally damp ground.



In cultivation ex Whanganui. Photographer: Simon Walls



A mature plant of *Sebaea ovata*. Photographer: Colin Ogle

## FEATURES

Annual, sparingly branched, erect herb, 50–300 mm tall. Stems 4-angled, hairless, pale yellow-green. Leaves, sessile, in opposite pairs, 6.5 x 15 x 5–10 mm, fleshy, pale green to almost blue-green, ovate to broad-ovate or suborbicular, apex obtuse to subacute, well spaced along stem; midrib prominent, with one conspicuous longitudinal vein either side. Inflorescence a mainly terminal cyme, with a few solitary flowers borne within the subtending leaf axils. Flowers 6.5 mm long, scarcely opening; calyx-lobes 5, narrowly ovate-lanceolate, acute with rigid narrowly winged keel. Corolla tube 4 mm, straight, pale yellow, corolla lobes 5, 3 mm long, pale yellow, linear-lanceolate to lanceolate, often twisted. Ovary 2-locular. Capsules ovoid-ellipsoid, 5 mm long. Seeds fine, dust-like.

## SIMILAR TAXA

Two introduced weeds, centuary (*Centaurium erythraea* Rafn. and *C. tenuiflorum* (Hoffm. et Link) Fritsch) and *Blackstonia perfoliata* (L.) Hudson occupy the same habitat, and are superficially similar. Centuary can be distinguished by its pink to deep rose flowers, whose anthers spirally twist after anthesis, and by the 1-locular rather than 2-locular ovary. *Blackstonia perfoliata* is most common in Northland and is much larger than *Sebaea* and has blue-green, ovate or oblong-ovate, cordate leaves,

## FLOWERING

November - January

## FLOWER COLOURS

Yellow

## FRUITING

December - February

## PROPAGATION TECHNIQUE

Can be grown from fresh seed. Not especially easy to grow, requiring specialist knowledge to successfully germinate and maintain plants.

## THREATS

Though formerly ranging from near Hokianga Harbour in the North Island to Lake Ellesmere in the South Island, by the 1980s *S. ovata* was known from only two sites near Wanganui. At both locations it is seriously at risk from weed encroachment, caused in part by changing water levels in the adjacent dune systems but also due to the release of rabbit calicivirus, which having locally eliminated rabbits, facilitated the spread of weeds normally suppressed by these animals into suitable *Sebaea* habitat. At both locations *Sebaea* is being maintained only by diligent management. This management has involved weed spraying and the construction of fresh habitats using a bull dozer.

## WHERE TO BUY

Not commercially available. Plants are held by two botanic gardens, one university and several specialist growers.

## ATTRIBUTION

Fact Sheet prepared by P.J. de Lange 20 October 2003. Description based on Allan (1961) supplemented with observations made from fresh and/or dried herbarium specimens

## REFERENCES AND FURTHER READING

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

Growth and habitat of *Sebaea ovata* (Gentianaceae) in New Zealand and Australia by P.D. Champion, D.E Hofstra, M.E. Auger, and C.E.C. Gemmill.

Ogle, C.C. 1989. *Sebaea ovata* and its habitat near Wanganui. Wellington Botanical Society Bulletin, 45: 92-99

## CITATION

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

## MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/sebaea-ovata/>



# Selliera rotundifolia

## COMMON NAME

Selliera

## SYNONYMS

None

## FAMILY

Goodeniaceae

## AUTHORITY

*Selliera rotundifolia* Heenan

## FLORA CATEGORY

Vascular – Native

## ENDEMIC TAXON

Yes

## ENDEMIC GENUS

No

## ENDEMIC FAMILY

No

## STRUCTURAL CLASS

Dicotyledonous Herbs other than Composites

## NVS CODE

SELROT

## CHROMOSOME NUMBER

2n = 16

## CURRENT CONSERVATION STATUS

2012 | At Risk – Declining | Qualifiers: RR

## PREVIOUS CONSERVATION STATUSES

2009 | At Risk – Declining

2004 | Gradual Decline

## DISTRIBUTION

Endemic. New Zealand: North Island (westerly from about Whanganui south to Paekakariki).

## HABITAT

In dune fields where it grows in seasonally damp swales (depressions), occasionally found along the margins of slow flowing tidal streams.

## FEATURES

Rhizomatous, mat-forming herb, forming dense patches up to 700 mm diam., or diffuse patches when trailing through other vegetation. Stems 1-2 mm diam. Petiole 3-7(-17) x 0.5-1 mm, distinct from leaf. Leaves dark green, glabrous, alternate, appressed to ground, lamina 3-7 x 3-5 mm, rotund, orbicular, leathery, entire, apex obtuse, base obtuse. Flowers single, arising in leaf axils. Pedicel 3-9 mm, glabrous, green to red-green, erect or spreading; bracts 1.5-2 x 0.7-0.9 mm, lanceolate, falcate, green, erect. Sepals 1-1.4 x 0.7-0.9 mm, narrow-triangular, distal part flushed red, apex subacute. Corolla 7-8 x 8-9 mm, 5 petals fused in proximal part, inner surface white, outer pale red. Petals 3-4 x 1.5-2 mm, lanceolate, falcate. Ovary 1.4-1.6 mm, green, glabrous. Style purple-red, stigma glabrous, orange brown. Stamens 3, orange-brown. Fruit 2-3 x 2-3 mm, ovoid, green. Seeds 1.5 x 1 mm, cream-white, compressed.



At Waikawa dunes. Nov 2004. Photographer: Barbara Mitcalfe



### SIMILAR TAXA

Distinguished from the allied *S. microphlla* and *S. radicans* by the distinctive, small, rounded to completely orbicular leaves.

### FLOWERING

December - February

### FLOWER COLOURS

Red/Pink, White

### FRUITING

January - May

### PROPAGATION TECHNIQUE

Easy from the division of whole plants. An excellent ground cover for sunny, well drained or water logged soils.

### THREATS

This species is threatened throughout its range by the spread of faster growing and taller weed species which are rapidly modifying the damp, dune swale and estuarine habitats this species favours.

### ETYMOLOGY

**selliera**: After Sellier

**rotundifolia**: Round leaf; from the Latin rotundus and folium

### ATTRIBUTION

Fact sheet prepared for NZPCN by P.J. de Lange 18 June 2006. Description adapted from Heenan (1997).

### REFERENCES AND FURTHER READING

Duguid, F. 1985. *Selliera radicans* with regular corolla. Wellington Botanical Society Bulletin, 42: 84

Heenan, P. B. 1997: *Selliera rotundifolia* (Goodeniaceae), a new, round-leaved, species from New Zealand. New Zealand Journal of Botany 35(2): 133-138

### CITATION

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

### MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/selliera-rotundifolia/>

# Senecio rufiglandulosus

## SYNONYMS

*Senecio latifolius* Banks et Sol. ex Hook.f. nom. illegit., *Senecio latifolius* var. *sinuatifolius* Kirk, *Senecio rufiglandulosus* var. *sinuatifolius* (Kirk) Allan, *Senecio solandri* Allan var. *solandri*, *Senecio solandri* var. *rufiglandulosus* (Colenso) Allan, *Senecio solandri* var. *sinutaifolius* (Kirk) Allan, *Senecio rufiglandulosus* var. *solandri* (Allan) Allan

## FAMILY

Asteraceae

## AUTHORITY

*Senecio rufiglandulosus* Colenso

## FLORA CATEGORY

Vascular – Native

## ENDEMIC TAXON

Yes

## ENDEMIC GENUS

No

## ENDEMIC FAMILY

No

## STRUCTURAL CLASS

Dicotyledonous Herbs - Composites

## NVS CODE

SENRUF

## CHROMOSOME NUMBER

2n = 40

## CURRENT CONSERVATION STATUS

2012 | Not Threatened

## PREVIOUS CONSERVATION STATUSES

2009 | Not Threatened

2004 | Not Threatened

## DISTRIBUTION

Endemic. North and South Islands from the Waitakere Ranges south to about Hokitika and Canterbury. An old Buchanan collection from Motuopao Island off Cape Maria Van Diemen is considered doubtful

## FLOWER COLOURS

Yellow

## PROPAGATION TECHNIQUE

Easy from fresh seed, stem cuttings and rooted pieces. An attractive herbaceous perennial for a damp, semi-shaded or sunny spot.

## ETYMOLOGY

**senecio:** From the Latin *senex* 'old man' (probably referring to the bearded seeds)

## WHERE TO BUY

No commercially available.



In cultivation ex Waitakere. Oct 2007.  
Photographer: Jeremy Rolfe



Near Marton. Dec 2007. Photographer: Ian Bell

**MORE INFORMATION**

<https://www.nzpcn.org.nz/flora/species/senecio-rufiglandulosus/>

# Spinifex sericeus

## COMMON NAME

Spinifex, kowhangatara

## SYNONYMS

New Zealand plants have long been referred to *Spinifex hirstutus* Labill. a species that is now considered quite unrelated and confined to Western Australia

## FAMILY

Poaceae

## AUTHORITY

*Spinifex sericeus* R.Br.

## FLORA CATEGORY

Vascular – Native

## ENDEMIC TAXON

No

## ENDEMIC GENUS

No

## ENDEMIC FAMILY

No

## STRUCTURAL CLASS

Grasses

## NVS CODE

SPISER

## CHROMOSOME NUMBER

$2n = 18$

## CURRENT CONSERVATION STATUS

2012 | Not Threatened

## PREVIOUS CONSERVATION STATUSES

2009 | Not Threatened

2004 | Not Threatened

## DISTRIBUTION

Indigenous. Common throughout New Zealand. Also present in Australia

## HABITAT

Strictly coastal where it is confined to sandy beaches. This is the main dune forming indigenous plant in New Zealand. It is usually found at the front of actively accumulating foredunes. It does not tolerate stable dune systems and does not compete well with other introduced dune plants.



New Chums beach, Whangapoua, February.  
Photographer: John Smith-Dodsworth



New Chums beach, Whangapoua, February.  
Photographer: John Smith-Dodsworth

## FEATURES

Stoloniferous, often forming colonies stretching to 80-(160) m along sand dunes, with much-branched, knotted, rope-like, hard, creeping culms. Leaf-sheath leathery, strongly-nerved, silky-hairy. Ligule minute, ciliate, hairs very dense to 6 mm. Leaf-blade c.300 mm, inrolled and c.1.5 mm diameter, leathery, strongly nerved, silky-villous. Culm 2.5-6.0 mm diameter, internodes glabrous, silky-villous below inflorescence. Dioecious\*: male inflorescence with numerous pedunculate racemes, 0-120 mm, bearing up to 15 silky-villous spikelets, each terminated by a short bristle c.10 mm; raceme clusters subtended by spathaceous bracts; raceme. Male spikelets 100 mm; glumes; spikelet, 7-9-nerved; lemmas similar to glumes but less villous, 5-nerved; each floret with 2 emarginate lodicules 0.6 x 0.3 mm, and 3 pollen-filled anthers to 6 mm. Female inflorescence very conspicuous, globular, appearing spiny with strict bracts to 150 mm, disarticulating from culm at maturity and wheeling along sand; spikelets solitary, hidden at base of bract, 15-18 mm; glumes equal to spikelet, 5-7-nerved, silky-villous; lemmas shorter, less villous, rather chartaceous, 3-5-nerved; lower floret sterile; upper floret female, larger, with 2 lodicules c.1 x 1 mm, and 3 stamens with stout filaments bearing white, pollen less anthers up to 1.5 mm; ovary 1.5-2.0 mm, stigma-styles 17-20 mm; seed free, c. 4.5-5.0 x 2.5 mm. \* but stems with both male and female flowers are known

## SIMILAR TAXA

None - the distinctive softly spiny female seed heads, which disarticulate and are usually seen rolling down the beach readily identify this species.

## FLOWERING

September - December

## FLOWER COLOURS

White

## FRUITING

November - May

## PROPAGATION TECHNIQUE

Easily grown from fresh seed (which is best). Can be grown from layered pieces but often slow to start and fickle. Does best when planted directly into sand dunes - not a good plant for the average garden.

## WHERE TO BUY

Sold by a number of specialist native plant nurseries. Popular plant for dune restoration.

## ATTRIBUTION

Description adapted from Edgar and Connor (2000).

## REFERENCES AND FURTHER READING

Edgar, E.; Connor H.E. 2000: Flora of New Zealand. Vol. 5. Landcare Research, Christchurch.  
Gardner, R. 1999. *Spinifex sericeus* in Auckland. Auckland Botanical Society Journal, 54: 36

## MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/spinifex-sericeus/>



# Spiranthes novae-zelandiae

## COMMON NAME

Ladys tresses, Spiranthes orchid

## SYNONYMS

New Zealand plants have been known incorrectly as *Neottia sinensis* Pers., *Neottia australis* R.Br., *Spiranthes australis* (R.Br.) Lindl., and *Spiranthes sinensis* (Pers.) Ames.

## FAMILY

Orchidaceae

## AUTHORITY

*Spiranthes novae-zelandiae* Hook.f.

## FLORA CATEGORY

Vascular – Native

## ENDEMIC TAXON

Indeterminate

## ENDEMIC GENUS

No

## ENDEMIC FAMILY

No

## STRUCTURAL CLASS

Orchids

## CHROMOSOME NUMBER

2n = 30

## CURRENT CONSERVATION STATUS

2018 | At Risk – Declining

## PREVIOUS CONSERVATION STATUSES

2012 | Threatened – Nationally Vulnerable | Qualifiers: DP, EF, Sp

2009 | Threatened – Nationally Vulnerable | Qualifiers: DP, Sp

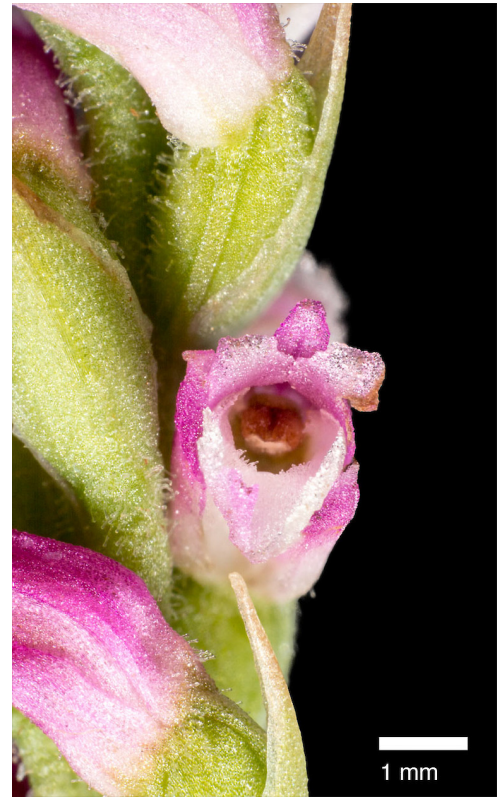
2004 | Not Threatened

## DISTRIBUTION

Endemic. North, South and Chatham Islands

## HABITAT

Coastal to montane in open sites within wetlands of varying tropic levels but most frequently seen in acidic peat bogs. Also record from lake margins, and on the banks of slow flowing streams. Occasional in seepages within tussock grassland, or in damp shingle within river beds.



View into flower showing anther. Otaki Forks. Photographer: Jeremy Rolfe



Spiranthes. Photographer: Nick Singers



## FEATURES

Terrestrial, glabrescent, somewhat fleshy, perennial herb. Plant at flowering up to 1 m tall. Roots stilt-like, numerous, white, more or less swollen, clustered around stem base. Tuber broadly ovoid to ellipsoid. Stem erect, slender to stout, initially rather brittle, becoming wiry. greatly exceeding leaves. Basal leaves 2-10, obliquely erect, held in a loose basal rosette; lamina 50-200 x 5-15 mm; dark green to yellow green, often tinged reddish, narrow-elliptic, narrow-lanceolate, to lanceolate or almost spathulate tapering into a 20-100 mm long petiole; stem-bracts 2-4(-6). Inflorescence spicate. Spike 20-150 x 5-10 mm; flowers more or less crowded, subsessile, spirally around stem. Ovary glabrescent to finely glandular pubescent. Perianth 4-7 mm long, more or less tubular-cylindric, rose-pink, rose-red, red, pink or completely white. Dorsal sepal projecting forwards, column-embracing, more or less oblong, slightly concave except near the upturned apex; lateral sepals divergent, slightly pouched at base, obtuse to subacute. Petals projected forwards, more or less oblong, more or less fused to dorsal sepal with their apices recurved. Labellum white or whitish pink with a white apex, broad and recurved at apex, more or less obscurely trilobed; mid-lobe upper margin more or less finely lacinate, much crisped, irregularly thickened; base sessile, concave, smooth, except for two prominent ovoid, lateral calli which fit beneath the stigma. Column narrow below stigma; anther obtuse, overtopping stigma; stigma broad and prominent, sometimes lacking rostellum, usually overtopped by delicate, membranous, lacinate column-wings.

## SIMILAR TAXA

Easily recognised by the usually perennial habit; preference for growing in muddy or partially flooded sites within wetlands; tufted habit, numerous, fleshy more or less lanceolate leaves which in flowering plants are clustered around a single tall multibracteate flowering stem; and by the numerous, small, tubular dark pink, red or white flowers arranged in a compact left or right sided helix. The labellum tips are white and finely fringed.

## FLOWERING

January - April

## FLOWER COLOURS

Red/Pink, White

## FRUITING

April - July

## PROPAGATION TECHNIQUE

Should not be removed from the wild. However, rather easily grown in a peat filled pot kept partially submerged in a tub of water, or in a suitably permanently damp, peaty, sunny spot in the garden.

## THREATS

Extremely uncommon and has undoubtedly declined as wetland habitat has been lost and further populations within protected wetlands seem to require regular disturbance to flourish. There are now very few places where this orchid could be regarded as abundant.

## ETYMOLOGY

**spiranthes:** Spiral flower

**novae-zelandiae:** Of New Zealand

## WHERE TO BUY

Not commercially available

## CULTURAL USE/IMPORTANCE

A range of forms occur in New Zealand, one has completely white, larger flowers with widely flaring labella, it may be *S. australis* (R.Br.) Lindl., the other recorded from Motutangi and the adjacent Kaimaumau Swamp seems to be insect-pollinated. The status of these forms needs further study.

## 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/spiranthus-novae-zelandiae/>

# Tetragonia implexicoma

## COMMON NAME

Native spinach

## SYNONYMS

*Tetragonia implexicoma* var. *chathamica* F.Muell., *Tetragonia trigyna* Banks et Sol. ex Hook.f.

## FAMILY

Aizoaceae

## AUTHORITY

*Tetragonia implexicoma* (Miq.) Hook.f.

## FLORA CATEGORY

Vascular – Native

## ENDEMIC TAXON

No

## ENDEMIC GENUS

No

## ENDEMIC FAMILY

No

## STRUCTURAL CLASS

Dicotyledonous Lianes and Related Trailing Plants

## NVS CODE

TETIMP

## CHROMOSOME NUMBER

2n = 32

## CURRENT CONSERVATION STATUS

2012 | Not Threatened

## PREVIOUS CONSERVATION STATUSES

2009 | Not Threatened

2004 | Not Threatened

## DISTRIBUTION

Indigenous. New Zealand: Kermadec Islands (Herald Islets, Raoul, Macauley Islands), Three Kings, North, South and Chatham Islands. Also Australia, Norfolk and Lord Howe Islands

## HABITAT

Coastal to montane. Mostly found in coastal areas occupying a variety of habitats from cobble and sand beaches through coastal forest and shrubland, also found in exposed windshorn vegetation on cliffs and rock stacks. Occasionally found growing well inland, sometimes in farmland where it grows in barberry (*Berberis* spp.) hedges or on limestone and calcareous sandstone outcrops in otherwise dense forest.



Kapiti Island. June 2005. Photographer: Jeremy Rolfe



*Tetragonia implexicoma*. Photographer: John Smith-Dodsworth

## FEATURES

Prostrate or scrambling subshrub forming straggling to dense leafy patches up to 4 m long. Stems long trailing, terete, initially somewhat succulent, and often coloured red or pink, maturing dark green to brown-black and becoming woody with age. Leaves alternate, often clustered, sometimes widely spaced along stems, fleshy, papillose; petiole 3-15(-20) mm long; lamina 20-50(-80) × (8-)10-30(-46) mm, ovate-rhomboid to lanceolate, to linear-lanceolate, adaxially dark green, green to almost glaucescent, abaxially paler, sometimes flushed pink. Flowers solitary; pedicels slender, 5-30 mm long. Perianth lobes 4, (1.8-)2.8-3.0(-3.6) mm long, oblong, abaxially papillose-hairy, adaxially finely papillose, yellow. Stamens 12-20. Ovary semi-inferior; locules and styles 2(-3). Fruit 5-8 mm long, succulent, pink to dark red, subglobose.

## SIMILAR TAXA

*Tetragonia implexicoma* is only ever likely to be confused with the related *T. tetragonioides* (New Zealand spinach) from which it is most reliably distinguished when fruiting by the pink to dark red fleshy, subglobose fruits rather than the dry, leathery obconic and distinctly horned fruits typical of *T. tetragonioides*.

## FLOWERING

September - June

## FLOWER COLOURS

Yellow

## FRUITING

September - July

## PROPAGATION TECHNIQUE

Easily grown from rooted pieces, stem cuttings and from fresh fruit. Although edible *Tetragonia implexicoma* has a decidedly less agreeable, more "soapy" taste. Like *T. tetragonioides* this species flourishes in a rich soil and does best grown in full sun. It can be used as a very effective ground cover in coastal situations and can be trained up walls and down cliff faces. It is reasonably drought tolerant but will not stand much frost. In New Zealand the species is highly variable and some populations, notably those from the Kermadec and Three Kings Islands have rather small leaves and a more compact growth habit which might be worth utilizing in cultivation.

## THREATS

Not Threatened. A widespread and common species throughout most of coastal New Zealand.

## ETYMOLOGY

**tetragonia:** Four-angled

## ATTRIBUTION

Fact sheet prepared for NZPCN by P.J. de Lange 24 October 2011. Description by P.J. de Lange.

## CITATION

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

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

## MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/tetragonia-implexicoma/>

# Thelymitra longifolia

## COMMON NAME

White Sun Orchid

## SYNONYMS

*Thelymitra alba* Colenso, *Thelymitra nemoralis* Colenso, *Thelymitra angustifolia* Hook.f., *Thelymitra aristata* sensu Hatch nom. inv., *Thelymitra forsteri* Sw., *Thelymitra grandis* F.Muel. ex Benth., *Thelymitra longifolia* var. *alba* (Colenso) Cheeseman, *Thelymitra longifolia* var. *forsteri* (Sw.) Hatch, *Thelymitra purpureo-fusca* Colenso

## FAMILY

Orchidaceae

## AUTHORITY

*Thelymitra longifolia* J.R.Forst. et G.Forst.

## FLORA CATEGORY

Vascular – Native

## ENDEMIC TAXON

No

## ENDEMIC GENUS

No

## ENDEMIC FAMILY

No

## STRUCTURAL CLASS

Orchids

## NVS CODE

THELON

## CHROMOSOME NUMBER

2n = 26

## CURRENT CONSERVATION STATUS

2012 | Not Threatened

## PREVIOUS CONSERVATION STATUSES

2009 | Not Threatened

2004 | Not Threatened

## DISTRIBUTION

Indigenous. Three Kings, North, South, Stewart, Chatham and Auckland Islands. Also on Norfolk Island.

## HABITAT

Coastal to subalpine (up to 1200 m a.s.l.). Occupying a wide range of habitats from open ultramafic talus to dense forest. However, it is most common in shrublands. This species is extremely variable and it is likely that following taxonomic revision, a number of forms, some with distinct ecologies, may be formally segregated.



*Thelymitra longifolia*. Photographer: DoC



*Thelymitra longifolia*. Photographer: DoC

## FEATURES

Terrestrial, tuberous, glabrous, spring to summer-green perennial herb, either solitary or in dense colonies of 4-20 plants arising through vegetative extension. Plant at flower up to 1 m tall (usually much less). Leaf solitary, erect, suberect or trailing the ground, very fleshy to subcoriaceous, deeply to weakly channelled and prominently ribbed longitudinally, 50-380 x 10-40 mm, green, dark green, reddish-green, reddish brown or yellow-green, lanceolate to linear-lanceolate, base closely sheathing, margins, surface and apex often disfigured by black spots and sometimes by prominent dark orange-brown rust pustules. Flowering stem stiffly erect, rather wiry, green, reddish green to brownish green. Bracts 1-2(-3), foliaceous, closely-sheathing, fleshy, of similar colour to stem and leaf. Raceme bearing (1-)5(-20) scented or unscented flowers. Flowers 8-18 mm diameter, externally red-green to dark green, internally white or very pale pink, segments spreading, widely spreading or scarcely opening, dorsal sepal slightly broader than laterals. Petals and labellum alike, narrowly ovate, subacute. Column up to 8 mm long, erect, basally brown or white grading to dark brown to almost black toward apex; column arms terete, mostly bent inwards such that they are lying more or less under post-anther lobe; cilia abundant, floccose (like cotton) or coarsely ciliate, white or cream, short and crowded in globose masses; post anther lobe overtopping anther, dark and smooth above middle, and usually yellowish on the semi-circular cucullate apex.

## SIMILAR TAXA

Most likely to be confused with *T. colensoi* Hook.f. and *T. pauciflora* R.Br., from both of which it differs by its usually white, sometimes pale pink flowers. From *T. pauciflora* it is readily separated by the broad, undivided, hooded column which usually completely encloses the cilia of the column arms. Smaller forms are separated from *T. colensoi* by their white flowers and broader, taller column which completely encloses the cilia of the column arms.

## FLOWERING

September - February

## FLOWER COLOURS

Red/Pink, White

## FRUITING

October - April

## PROPAGATION TECHNIQUE

Moderately easy to grow. Does well in a pot. Should not be removed from the wild. This species often naturalises into gardens adjoining indigenous vegetation. It is sometimes seen as a pot contaminant of commercial plant lines.

## ETYMOLOGY

**thelymitra**: Woman's hat

**longifolia**: Long leaf

## WHERE TO BUY

Not commercially available.

## TAXONOMIC NOTES

At least three forms of *T. longifolia* are included here. One is usually associated with montane beech (*Nothofagus* Blume) forests. This is a small slender plant, which has a linear-lanceolate yellow-green leaf and usually a single, scarcely opening, self pollinating white flower. Another is a widespread variable plant with numerous flowers, which are unscented, and mostly only open on hot, still, sunny days. This form has column arm cilia that are distinctly floccose (like cotton wool). It is self pollinating and matches the type. The last form has numerous scented flowers, which open in sunny or cloudy weather, and coarse column arm cilia. This form is insect pollinated.

## ATTRIBUTION

Fact Sheet prepared for NZPCN by P.J. de Lange 14 April 2007. Description subsequently published in de Lange et al. (2007) and Rolfe & de Lange (2010).

## REFERENCES AND FURTHER READING

de Lange, P.; Rolfe, J. St George, I. Sawyer J. 2007: Wild orchids of the lower North Island. Department of Conservation, Wellington. 194pp.

Rolfe, J.R.; de Lange, P.J. 2010: Illustrated guide to New Zealand sun orchids, *Thelymitra* (Orchidaceae). Jeremy Rolfe, Wellington.



**CITATION**

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

**MORE INFORMATION**

<https://www.nzpcn.org.nz/flora/species/thelymitra-longifolia/>

# Thelymitra pauciflora

## COMMON NAME

Sun orchid

## SYNONYMS

None

## FAMILY

Orchidaceae

## AUTHORITY

*Thelymitra pauciflora* R.Br.

## FLORA CATEGORY

Vascular – Native

## ENDEMIC TAXON

No

## ENDEMIC GENUS

No

## ENDEMIC FAMILY

No

## STRUCTURAL CLASS

Orchids

## NVS CODE

THEPAU

## CHROMOSOME NUMBER

2n = 26

## 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 Australia where it occurs in Queensland, New South Wales, Australian Capital Territory, Victoria, South Australia and Tasmania.

## HABITAT

Mostly coastal to lowland, rarely lower montane. Usually in very open shrubland, on clay pans, gumland scrub, forest margins, in ultramafic scree and in open grassland. This species is also commonly found in urban areas along street verges in bark gardens and wasteland.



Flowering plant, Kennedy Bay (January).  
Photographer: John Smith-Dodsworth



Flowering plant, Kennedy Bay (January).  
Photographer: John Smith-Dodsworth

## FEATURES

Glabrous, terrestrial orchid. Tubers 10-20 x 5-10 mm, ovoid, fleshy pinkish white to pinkish grey. Leaf 80-300 x 3-6(-12) mm, erect, fleshy, canaliculated, dark or light green with purplish to maroon base, often spotted with rust, abaxially prominently ribbed, ribs often maroon, sheathing at base, apex acute to acuminate. Inflorescence 0.15-0.6 m tall, 1-1.5(-3) mm diameter, stout but slender, straight, dark green to purple-green to reddish. Sterile bracts 1-2(-3), 15-50 x 3-5 mm, linear to linear-lanceolate, closely sheathing, acute to acuminate, green or maroon, sometimes purplish. Fertile bracts 4-15 x 2-5 mm, ovate-acuminate to obovate-acuminate, sheathing at pedicels, green to purple-green. Pedicels 1-10 mm long, slender. Ovary 5-12 x 2-4 mm, purple-green to red-green, narrow-obovoid. Flowers 1-8, 15-20 mm diameter, dark blue to mauve, sometimes white; opening only on very hot, still, sunny days, mostly entomophilous, tending to autogamous. Perianth segments 6-10 x 3-5 mm, concave, shortly apiculate; dorsal sepal lanceolate to ovate, obtuse to subacute; lateral sepals lanceolate to ovate, often asymmetric, acute; petals ovate to obovate, obtuse to subacute; labellum elliptic to lanceolate, acute, often smaller than other segments. Column 4.0-5.0 x 2.0-2.5 mm, erect from end of ovary, pale blue to dark pink; post anther lobe 1.8-2.5 x 1.0-1.5 mm, cucullate, tubular, gently curved, usually blackish-purple to reddish-brown, apex entire to emarginate, bright yellow; post anther lobe extension 0.4-0.7 mm; auxillary lobes absent or sometimes present as 2 tiny incurved spurs on the lower apical margin of the post-anther lobe; lateral lobes converging, 0.5-1.0 mm long, digitiform, porrect at base, bent sharply upwards near the middle at 90 degrees, each with a subterminal tuft of white (or mauve) cilia that touch the ventral side of the apex of the post-anther lobe; cilia 1-1.5 mm long. Anther inserted above central column, 2.0-2.5 x 1.0-1.5 mm. Stigma situated at base of column, 1.5-2 x 1.5-2 mm, ovate-quadrate, margins irregular. Capsules 8-15 x 3-6 mm, obovoid, erect, deeply ribbed.

## SIMILAR TAXA

*Thelymitra colensoi* Hook.f. is rather similar and often confused with this species. However, *T. colensoi*, is an endemic species which is much smaller and more slender, with fewer flowers (up to 5) which almost never open, and then only one at a time. The flowers are certainly autogamous and probably also cleistogamous. The petals are pale blue to pale pink. The post-anther lobe is not as thin or as deeply inturned as *T. pauciflora*, pale blue to pink, grading through brown to reddish-brown with a pale yellow to yellow margin. The post anther lobe is rather similar to *T. longifolia* G.Forst though much more deeply cleft. *Thelymitra colensoi* is often known in New Zealand by its later synonym *T. intermedia* Berggren

## FLOWERING

September - December

## FLOWER COLOURS

Blue, Violet/Purple

## FRUITING

November - March

## PROPAGATION TECHNIQUE

Easily grown from tubers. Often naturalises in suitable habitats. Not a very attractive subject because the flowers tend only to open on very hot still days, and the leaves are usually infected with *thelymitra* rust. However, it is easily grown, in a well drained, sunny situation, and plants soon form small colonies through vegetative spread from the tubers.

## ETYMOLOGY

**thelymitra:** Woman's hat

**pauciflora:** Few-flowered

## WHERE TO BUY

Not commercially available

## ATTRIBUTION

Fact Sheet prepared for NZPCN by P.J. de Lange 14 April 2007. Description subsequently published in Rolfe & de Lange (2010). See also Jeanes (2004).

## REFERENCES AND FURTHER READING

- Jeanes, J. 2004: A revision of the *Thelymitra pauciflora* R.Br. (Orchidaceae) complex in Australia. *Muelleria* 19: 19-79.
- Rolfe, J.R.; de Lange, P.J. 2010: Illustrated guide to New Zealand sun orchids, *Thelymitra* (Orchidaceae). Jeremy Rolfe, Wellington.

## CITATION

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

## MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/thelymitra-pauciflora/>

# Zoysia minima

## COMMON NAME

Prickly couch, zoysia

## SYNONYMS

*Gaimardia minima* Colenso

## FAMILY

Poaceae

## AUTHORITY

*Zoysia minima* (Colenso) Zotov

## FLORA CATEGORY

Vascular – Native

## ENDEMIC TAXON

Yes

## ENDEMIC GENUS

Yes

## ENDEMIC FAMILY

No

## STRUCTURAL CLASS

Grasses

## NVS CODE

ZOYMIN

## CHROMOSOME NUMBER

2n = 40

## CURRENT CONSERVATION STATUS

2018 | At Risk – Declining

## PREVIOUS CONSERVATION STATUSES

2012 | Not Threatened

2009 | Not Threatened

2004 | Not Threatened

## DISTRIBUTION

Endemic. North Island south from Auckland and Coromandel. South Island scattered from Nelson, Marlborough south to Central Otago

## HABITAT

Coastal to inland on sand dunes, sandy ground, and gravel. From sea level to 600 m.

## PROPAGATION TECHNIQUE

Eaasy from rooted pieces. Fresh seed should germinate well. A mat-forming species ideal for high traffic areas such as lawns, and well suited to dry sites and free draining soils.

## ETYMOLOGY

**zoysia:** Named for Karl von Zois (or Zoys), 18th century Austrian botanist

**minima:** Very small

## WHERE TO BUY

Not commercially available.



Flowers. Pihama. Nov 1975. Photographer: Colin Ogle



Taranaki coast. Oct 2005. Photographer: Ian Bell

**MORE INFORMATION**

<https://www.nzpcn.org.nz/flora/species/zoysia-minima/>



# Glossary

<b>abaxial</b>	Facing away from the stem of a plant (especially denoting the lower surface of a leaf).
<b>acerose</b>	Narrow with a sharp stiff point.
<b>achene</b>	A simple, dry, one-seeded (one-celled) fruit.
<b>acicular</b>	Needle-shaped.
<b>acidic</b>	Having a low pH, opposite of basic or alkaline.
<b>acrosopic</b>	Pointing towards, or on the side of, the apex.
<b>acuminate</b>	Gradually tapered to a point. Sharply pointed.
<b>acute</b>	Pointed or sharp, tapering to a point with straight sides.
<b>adnate</b>	Fusion of unlike parts, e.g. stamens fused to petals.
<b>adventive</b>	A plant that grows in the wild in New Zealand but which was introduced to the country by humans.
<b>agglutinated</b>	Stuck together.
<b>allelopath</b>	An organism that releases compounds that are toxic to other species.
<b>allelopathy</b>	The release by an organism of compounds that are toxic to other species.
<b>alternate</b>	Attached singly at each node but changing from one side of a stem to the other.
<b>alveolate</b>	Honeycombed with ridged partitions.
<b>amplexicaul</b>	Clasping or surrounding the stem.
<b>anamorph</b>	Asexual fruiting stage, usually of an ascomycete fungus.
<b>anastomosing</b>	Rejoining after branching, as in some leaf veins.
<b>annual</b>	A plant that completes its complete life cycle within the space of a year.
<b>annual evergreen</b>	Plants that lose their over-wintering leaves rapidly in the first half of the growing season. Annual evergreens never present a leafless appearance, but are closer in a functional sense to a deciduous plant than they are to multi-annual evergreens.
<b>annulus</b>	Line of thickened cells that governs the release of spores from a sporangium.
<b>anterior</b>	Towards the front.
<b>anther</b>	The pollen-bearing portion of the stamen.
<b>antheridium</b>	Male reproductive organ formed on the prothallus of a fern.
<b>anthesis</b>	Flowering period from when the bud opens
<b>apex</b>	Tip; the point furthest from the point of attachment.
<b>apices</b>	Plural of apex. Tip, the point furthest from the point of attachment.
<b>apiculate</b>	Bearing a short slender and flexible point.
<b>apiculus</b>	A small, slender point.
<b>apomixis</b>	A form of reproduction whereby seed is formed without the usual mode of sexual fusion.
<b>appressed</b>	Pressed against another organ or surface.
<b>aquatic</b>	Growing, or living in, or frequenting water. Applied to plants and animals and their habitats. Opposite of terrestrial (land living).
<b>archegonium</b>	Female reproductive organ of a fern formed on the prothallus.
<b>arcuate</b>	Curved into an arch.
<b>aril</b>	An often fleshy appendage on the outside of a seed.
<b>artificial thinning</b>	Selectively removing vegetation to create gaps to facilitate natural invasion of native plants, or to plant later successional plants.
<b>ascending</b>	Growing obliquely upward.
<b>asexual</b>	Vegetative reproduction, lacking sexual involvement by sperm or egg cells.
<b>attenuate</b>	Narrowing gradually.
<b>auricle</b>	A small, ear-shaped appendage.
<b>auriculate</b>	Bearing a small, ear-shaped appendage.
<b>autogamous</b>	Self-fertilising flowers.
<b>autotrophic</b>	Of or relating to organisms (as green plants) that can make complex organic nutritive compounds from simple inorganic sources by photosynthesis.
<b>awn</b>	A stiff or bristle like projection often from the tip or back of an organ.

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

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

<b>decrecent</b>	Diminishing.
<b>decumbent</b>	With a prostrate or curved base and an erect or ascending tip.
<b>decurrent</b>	Attached by a broadened base.
<b>decurved</b>	Curved downward.
<b>deflexed</b>	Bent abruptly downward.
<b>dehiscence</b>	The time of opening at maturity to release the contents, e.g., a capsule releasing the seeds.
<b>dehiscent</b>	Splitting open at maturity to release contents (of a fruit).
<b>deltoid</b>	Shaped broadly like an equilateral triangle.
<b>dentate</b>	Toothed along the margin with the teeth pointing outward, not forward.
<b>denticles</b>	Minute teeth.
<b>denticulate</b>	Having a very finely toothed margin.
<b>dichotomous</b>	Divided into two equal branches.
<b>digitiform</b>	Finger-like.
<b>dioecious</b>	Having male and female flowers on separate plants of the same species.
<b>diploid</b>	With two complete sets of chromosomes in each cell.
<b>disarticulating</b>	Separating at a joint.
<b>discoïd</b>	Disc-shaped.
<b>disjunct</b>	A species or other taxonomic group that occupies areas that are widely separated and scattered and therefore have a discontinuous distribution.
<b>distal</b>	Toward the apex, away from the point of attachment (cf. proximal).
<b>distichous</b>	In two rows on opposite sides of the axis.
<b>divaricating</b>	Branching at a very wide angle with stiff intertwined stems.
<b>domatia</b>	Small structures on the lower surface of a leaf in some woody dicotyledons, located in the axils of the primary veins and usually consisting of depressions partly enclosed by leaf tissue or hairs.
<b>dorsal</b>	Of the back or outer surface relative to the axis. (cf. ventral).
<b>drupe</b>	A stone fruit, the seed enclosed in a bony covering (endocarp) which is surrounded by a + fleshy layer (mesocarp).
<b>early successional species</b>	Plants which are able to colonise an open area after disturbance but which are often temporary and are replaced by taller plants in time and shaded out.
<b>echinate</b>	Having sharply pointed spines or bristles.
<b>ecological district</b>	A characteristic landscape and biological community defined in the PNA (Protected Natural Area) programme.
<b>ecological restoration</b>	Attempt to reinstate original (pre-disturbance) state of a habitat, plant community or ecosystem.
<b>ecosourced</b>	Plants sourced from seed collected from similar naturally growing plants in the area of the planting site.
<b>ecosourcing</b>	Using native plants grown from locally grown seeds. Eco-sourced plants help to preserve the ecological distinctiveness of an area, and ecosourced plants fare better and are adapted to survive in the local conditions.
<b>eglandular</b>	Without glands.
<b>elaiosome</b>	Fleshy, oil-rich structure attached to seed that attracts ants which act as dispersers.
<b>ellipsoid</b>	Elliptic in long section and circular in cross-section.
<b>elliptic</b>	Broadest at the middle.
<b>emarginate</b>	With a notch at the apex.
<b>emarginated</b>	Having a shallow notch at the tip, as in some petals and leaves.
<b>emergent</b>	In an aquatic sense - wetland herbs that are rooted in the substrate below water level, but carry leaves and stems above the water level e.g. rushes and raupo. Found on the shallow margins of lakes, ponds and waterways. In a forest sense - tree that is appearing above the surrounding canopy.
<b>emergent marginals</b>	An aquatic plant having most of its structure above water. Other aquatic plants are submerged or floating.
<b>endemic</b>	Unique or confined to a place or region, found naturally nowhere else.

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

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



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

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

<b>outer canopy deciduous</b>	Marked reduction in leaf number in the outer canopy in exposed high light environments over winter.
<b>oval</b>	Planar, shaped like a flattened circle, symmetrical about both the long and the short axis; about twice as long as broad, tapering equally both to the tip and the base. Synonymous with elliptical.
<b>ovary</b>	Part of a flower containing the ovules and later the seeds.
<b>ovate</b>	Egg-shaped and widest at base.
<b>ovoid</b>	Oval; egg-shaped, with rounded base and apex.
<b>pakihi</b>	A term which in its strict sense refers to open clears within forest dominated by low scrub and rushes. However, more usually used to refer natural and induced wetlands and their associated shrublands. A vernacular most frequently used in the West Coast for impoverished soils and their associated peats, left after forest has been cleared.
<b>palea</b>	The small upper bract enclosing the flower of a grass.
<b>palea</b>	1. The upper of the two bracts that enclose each floret in a grass spikelet. 2. A small bract at the base of a disc floret in some plants of the composite family. 3. Scales on various parts of ferns (referred to as paleate or paleaceous). From the Latin word for 'chaff'.
<b>paleae</b>	Plural of palea, from the Latin word for 'chaff'. 1. The upper of the two bracts that enclose each floret in a grass spikelet. 2. A small bract at the base of a disc floret in some plants of the composite family. 3. Scales on various parts of ferns (referred to as paleate or paleaceous).
<b>palmately</b>	Radiating from a point, as fingers radiating from the palm of a hand.
<b>palmatifid</b>	Deeply divided into several lobes arising from more or less the same level.
<b>palmatisect</b>	Intermediate between palmate and palmatifid, i.e. the segments are not fully separated at the base; often more or less digitate.
<b>palustrine</b>	Pertaining to wet or marshy habitats. Term covers mires and marshes.
<b>pandurate</b>	Fiddle-shaped.
<b>panicle</b>	Highly branched (multiple raceme).
<b>papilla</b>	A short rounded projection.
<b>papillae</b>	A soft, fleshy projection, usually small and nipple-like.
<b>papillate</b>	With short rounded projections.
<b>papillose</b>	Warty, with short rounded projections or gland-dotted.
<b>parallel venation</b>	Veins are parallel along leaf.
<b>parasite</b>	An organism that derives all its nourishment from its host.
<b>patent</b>	Spreading or expanded, e.g., spreading petals.
<b>peat</b>	A mass of partially carbonised plant tissue formed by partial decomposition in water of various plants and especially of mosses of the genus Sphagnum, widely found in many parts of the world, varying in consistency from a turf to a slime used as a fertiliser, as stable litter, as a fuel, and for making charcoal. Partially carbonized vegetable matter saturated with water; can be used as a fuel when dried. A type of soil deriving from dead organic material situated in a wet area, where the reduced amount of [[oxygen available in the wet conditions results in the organic material not decomposing as much as it usually would do so in the presence of more oxygen. Used in growing media. Represents an important carbon sink –drainage of peat releases large amounts of carbon (CO <sub>2</sub> ) to the atmosphere.
<b>pedicel</b>	The stalk of a single flower in an inflorescence or fruit (either in a cluster or existing singularly).
<b>peduncle</b>	The stalk of a solitary flower or the main stalk of an inflorescence or flower cluster.
<b>pedunculate</b>	Describing fruits, which are borne on a stalk (a peduncle).
<b>pellucid</b>	Transparent.
<b>peltate</b>	Shield-like, with the stalk attached well inside the margin.
<b>pendent</b>	Hanging down from its support.
<b>pendulous</b>	Hanging or drooping.
<b>penicillate</b>	With a tuft of hairs at the end, like a brush.
<b>perennial</b>	A plant lasting for three seasons or more.
<b>perianth</b>	A collective term for the calyx (sepals or tepals) and corolla (petals) of the flower, especially when these are indistinguishable.
<b>petal</b>	Part of flower inside the sepals; usually coloured.
<b>petiolate</b>	Having a petiole.

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

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

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



<b>summer-green</b>	Used in New Zealand to indicate herbs or sub-shrubs that die down to a root stock or rhizomatous network.
<b>supplementary planting</b>	Returning to a revegetation site and creating gaps, or filling existing gaps, with different plants of plants, usually later successional plants which may not have survived being planted in the first phases of the project.
<b>surface water</b>	Water present above the substrate or soil surface.
<b>surveillance</b>	Regular survey for pests inside operational and managed areas e.g. nurseries, standout areas on parks.
<b>survey</b>	Collection of observations on the spatial distribution or presence or absence of species using standardised procedures.
<b>sustainable land management</b>	The use of farming practices which are sustainable both financially and environmentally including management of nutrient runoff, waste disposal or stock effluent, reducing impacts of nutrients on waterways, preventing erosion and soil loss, and protecting native forest and wetland habitats from stock damage.
<b>swamp</b>	Low land that is seasonally flooded; has more woody plants than a marsh and better drainage than a bog. They are more fertile and less acidic than bogs because inflowing water brings silt, clay and organic matter. Typical swamp plants include raupo, purei and harakeke (flax). Zonation and succession often leads through manuka to kahikatea swamp forest as soil builds up and drainage improves.
<b>symbiote</b>	An organism that has an association with organisms of another species whereby the metabolic dependence of the two associates is mutual.
<b>symbiotic</b>	The relation between two different species of organisms that are interdependent; each gains benefits from the other (see also symbiosis).
<b>sympatric</b>	Occupying the same geographical region.
<b>synangia</b>	Structures made up of fused sporangia.
<b>synonym</b>	A botanical name that also applies to the same taxon.
<b>systematics</b>	The study of taxonomy, phylogenetics, and taxagenetics.
<b>tabular</b>	Shaped like a rectangular tablet.
<b>taxa</b>	Taxonomic groups. Used to refer to a group at any level e.g., genus, species or subspecies.
<b>taxon</b>	A taxonomic group. Used to refer to a group at any level e.g., genus, species or subspecies.
<b>taxonomy</b>	The process or science of classifying, naming, and describing organisms.
<b>tepal</b>	An individual member of the perianth.
<b>terete</b>	Cylindrical and tapering.
<b>terminal</b>	At the tip or apex.
<b>ternatifid</b>	Leaflets in threes,.
<b>tetrad</b>	A group of four.
<b>tomentum</b>	A hairy covering of short closely matted hairs.
<b>translocation</b>	The movement of living organisms from one area to another.
<b>trifid</b>	Divided into three.
<b>trifoliate</b>	Having three leaflets.
<b>trigonus</b>	Three-angled.
<b>tripinnate</b>	With each secondary pinna divided to the midrib into tertiary pinnae.
<b>triquetrous</b>	Triangular in cross section and acutely angled.
<b>truncate</b>	With the apex or base squared at the end as if cut off.
<b>tuberculate</b>	Bearing small swellings.
<b>tubular</b>	Tube-shaped.
<b>turbinate</b>	Top-shaped.
<b>turgid</b>	Distended through internal pressure.
<b>type locality</b>	The place or source where a holotype or type specimen was found for a species.
<b>ultramafic</b>	A type of dark, usually igneous, rock that is chemically dominated by magnesium and iron-rich minerals, the partially metamorphosed form of which is serpentinite.
<b>umbel</b>	Umbrella like; the flower stalks arise from one point at the stem.
<b>undulate</b>	Wavy edged.
<b>undulose</b>	Wavy edged.

<b>unitubular</b>	A tube partitioned once – literally one tube (compare – multitubular – many tubes).
<b>utricle</b>	A thin loose cover enveloping some fruits (eg., Carex, Uncinia).
<b>valvate</b>	Opening by valves.
<b>vascular plant</b>	A plant that possesses specialised conducting tissue (xylem and phloem). This includes flowering plants, conifers and ferns but excludes mosses, algae, lichens and liverworts.
<b>velutinous</b>	Thickly covered with delicate hairs; velvety.
<b>ventral</b>	Of the front or inner (adaxial) surface relative to the axis. (cf. dorsal).
<b>vermiform</b>	Worm-shaped.
<b>vernucose</b>	Glossy, literally as if varnished, e.g., Hebe vernucosa has leaves than appear as if varnished.
<b>verrucose</b>	Having small rounded warts.
<b>verticillium</b>	A fungus disease that will cause wilting and death.
<b>villous</b>	Covered with long, soft, fine hairs.
<b>water table</b>	The level at which water stays in a soil profile. The zone of saturation at the highest average depth during the wettest season.
<b>wetland</b>	A site that regularly has areas of open water for part or all of the year, or has a water table within 10 cm of the surface for at least 3 months of the year. Wetland ecosystems support a range of plant and animal species adapted to a aquatic or semi-aquatic environment.
<b>whipcord</b>	A shrub in which the leaves are reduced to scales that are close-set and pressed against the stem.
<b>whorl</b>	A ring of branches or leaves arising at the same level around the stem of a plant.
<b>whorled</b>	Aranged in a ring around the stem.