



Wairarapa Moana threatened flora



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

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Introduction

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

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

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

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

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

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

The New Zealand Botanic Region

The information on the Network website, from which this book was compiled, is for species that are indigenous to or naturalised within the New Zealand Botanic Region as defined by Allan (1961). The New Zealand botanic region 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
- Advocacy to raise awareness of the importance of plant life in general and especially New Zealand's status as a Global Centre of Plant Diversity
- Lobbying central and regional government and business to protect indigenous plant life
- Educating people about plant life through the Network website
- Connecting people through the monthly newsletter, the Network conference and the annual general meeting

What is a threatened plant?

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

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

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

Amphibromus fluitans

Common Name(s):

Water brome

Threat Status (2009):

Nationally Endangered

Distribution:

Indigenous. New Zealand, North and South Islands. In the North Island It is known from Ninety Mile Beach and Karikari Peninsula to Paekakariki and Lake Wairarapa. In the South Island known only from Maher's Swamp, near Punakaiki and from Lake Tekapo. Present in Australia where it is very uncommon.

Habitat:

Coastal to montane in moderately fertile, seasonally dry wetlands or along the edges of shallow lakes and lagoons.

Features:

Somewhat flaccid to weakly tufted, stoloniferous, semi-aquatic grass, forming circular grey-green mats 70-400 x 150 mm on muddy ground (up to 400 mm tall when growing up through surrounding vegetation). Culms decumbent, rooting at lower nodes, erect or floating above. Leaf-sheath papery, smooth or scabrid, often wholly scabrid toward culm apex. Ligule 1.5-5 mm, long-tapered, acute, initially entire, becoming lacerate. Leaf-blade 50-125 x 0.6-3 mm, grey-green, flat or inrolled, upper surface somewhat scabrid, shallowly ribbed, undersides notably more scabrid and prominently ribbed, apex acute. Culm internodes mostly smooth, rarely scabrid below nodes. Panicle 65-13 mm, erect, initially enclosed below by uppermost leaf-sheath, at fruiting often expanding entirely above leaves; branches and pedicels scabrid. Spikelets 15-25 mm, 3-6-flowered, pale green. Glumes unequal, glabrous, obtuse margins ciliate-scabrid; lower 2-3 mm, 1-nerved, narrowly lanceolate, upper 2-4 mm, 3-nerved, ovate-lanceolate. Lemma 4-5.5 mm, 7-nerved, firm, green, margin rather wide, hyaline, minutely scabrid or hairy; lemma lobes 2, obtuse; awn 7-18 mm, straight, arising from lemma midpoint. Palea < lemma, keels stiffly ciliate, interkeel glabrous. Seeds 1.5-2 x 0.5-0.7 mm.

Flowering:

September - May
(dependent on water levels)

Fruiting:

September - July
(dependent on water levels)

Threats:

Habitat loss through wetland drainage, stock grazing and competition from weeds.

For more information, visit:

http://nzpcn.org.nz/flora_details.asp?ID=47



Caption: *Amphibromus fluitans* plants flowering on semi-dried mud of seasonal pond

Photographer: Colin Ogle Lake Wairarapa, Boggy Pond.



Caption: *Amphibromus fluitans* close up of spikelets

Photographer: Colin Ogle, Lake Wairarapa, Boggy Pond

Carex cirrhosa

Common Name(s):

Curly Sedge

Threat Status (2009):

Nationally Vulnerable

Distribution:

Endemic. North, South Island - mainly easterly. In North Island very local from Lake Whangape (near Huntly) to Lake Wairarapa. In the South Island in scattered sites from about North Canterbury to Southland.

Habitat:

Lake, pond and tarn margins - preferring low marginal turf in sites subjected to seasonal inundation.

Features:

Tufted sedge forming dense wine red, silvery-grey or yellow-green tussocks. Culms 100-400 mm long, enclosed by light brown leaf sheaths. Leaves 25-200 X 0.5-1.0 mm, basally wine-red, apically silvery-grey, narrow-linear, concavo-convex, margins incurved, scabrid, tip strongly curled and twisted. Inflorescence of 2-5 spikes buried within basal portion of plant; terminal 1-2 male, lower 1-3 female crowded round base of male spikes, 3-8 X 2 mm, lower most spikes often distant, pedunculate, bracts subtending female spikes leaf-like, > spikes. Glumes slightly < utricles, or = to urticule length if awned, ovate-lanceolate, acuminate, cuspidate, hyaline, white or pale pink, midrib often green. Utricles 2.0-3.0 X 1.0-1.5 mm, plano-convex, elliptic-ovoid, yellow-green in lower half and on beak, pinkish brown otherwise, nerved, sessile, margins smooth or minutely scabrid, abruptly narrowed to an acute bidentate beak 0.5 mm, crura scabrid. Stigmas 2. Nut 1.5 mm, biconvex, oblong-ovoid, brown. Flowering. October-January Fruiting. November-February.

Flowering:

No information available

Fruiting:

No information available

Threats:

Habitat loss as a consequence of taller and faster growing weeds encroaching on the lake side marginal turf communities this sedge evidently prefers. This species is also threatened by changes in lake levels and seasonal water regimes as a consequence of dams and water abstraction.

For more information, visit:

http://nzpcn.org.nz/flora_details.asp?ID=1401



Caption: Spikelet. In cultivation. Oct 2007.

Photographer: Jeremy Rolfe



Caption: *Carex cirrhosa* showing spikelets

Photographer: John F. Hobbs, April 2005, Lake Rerewhakaaitu

Centipeda minima subsp. *minima*

Common Name(s):

sneezeweed, centipeda

Threat Status (2009):

Nationally Critical

Distribution:

Indigenous. New Zealand: Kermadecs (Raoul Island), and North Island. The majority of historic records unsupported by herbarium specimens have to be regarded as unreliable due to confusion with three other species recently recognised in New Zealand, the endemic *C. aotearoana*, and indigenous *C. cunninghamii* and *C. elatinoides*. Recent confirmed records of *C. minima* have come recently from Raoul Island (May 2011) and from the North Island, from about the Waikato and Bay of Plenty north. Present also in Australia, India, Russia, China, Japan, Malesia and on some Pacific Islands.

Habitat:

Wet, or partially dried out lake, pond and stream margins. Often in coastal areas. This species requires open sparsely vegetated ground. It cannot tolerate any competition, so grows in the most open sites it can find (wet or dry). The largest recently discovered populations in New Zealand come from rubbish dumps, poorly draining foot paths, and muddy ground associated with poorly drained airstrips.

Features:

Aromatic, usually prostrate, annual, bright green, spreading herb up to 250 mm diam and 200 mm high. Branches numerous, spreading, frequently rooting from lower leaf nodes, glabrescent or finely covered in cottony, wispy hairs. Leaves spatulate, rhomboidal 3-27 mm x 1.5-11 mm, light green to dark green, never glaucescent, usually glabrescent sometimes cottony hairy, lamina margin serrated with 1-4 pairs of teeth, these usually confined to the upper third of lamina. Inflorescence a solitary, sessile to subsessile, axillary, leaf opposed capitulum. Capitula hemispherical to subglobular, 1.5-5 mm diam., greenish-yellow; involucre bracts obovate, 1-1.6 mm, receptacle convex; corolla of female flowers 0.1-0.25 mm, bisexual florets 0.3-0.4 mm. Fruiting heads disarticulating at maturity. Cypselas narrowly obcuneate, 0.6-1.5 mm, truncate or obtuse, with 4-8 ribs bearing short antrorse bristles, uniting as a pale, pithy apical cap in distal quarter.

Flowering:

(August-) December (-May)

Fruiting:

(August-) December (-May)

Threats:

The major threats come from aggressive wetland weeds, such as Mercer grass (*Paspalum distichum*), which rapidly smothers the open muddy ground this species favours. This species is weedy and opportunistic and so can potentially be found anywhere there is suitably open, muddy, ground.

For more information, visit:

http://nzpcn.org.nz/flora_details.asp?ID=10



Caption: Mat growth form

Photographer: Erik Eyndhoven



Caption: Mat growth form

Photographer: Erik Eyndhoven

Crassula peduncularis

Threat Status (2009):

Nationally Critical

Distribution:

Indigenous. In New Zealand recorded from North, South and Stewart Islands where it is mainly found in the drier eastern areas. North Island, south from the south Taranaki coast and Hawkes Bay to Wellington. South Island scattered locally from Marlborough to Southland. Stewart island, known from Masons Bay. Indigenous to Australia and South America

Habitat:

Coastal to subalpine. A species of ephemeral wetlands (lake margins, tarns), seasonally damp coastal turfs, and uplifted marine terraces.

Features:

Inconspicuous, rather delicate, primarily late winter to spring annual herb. Stem decumbent or prostrate fleshy, pinkish white, white to purple, rooting at nodes, usually much branched and ascending. Leaves connate (fused) at base, 1.3-4.5 x 0.3-0.7 mm, fleshy, dark green, yellow-green to pink, linear, linear-lanceolate, flattened above, convex beneath; apex acute or apiculate. Flowers 4-merous, solitary arising from axial or one leaf within a pair. Pedicels <1 mm at flowering, elongating to 10-15 mm long at fruiting. Calyx lobes 0.5-0.8 x 0.3 mm, ovate-triangular, obtuse to subacute. Petals 0.6-0.7 x 0.2-0.3 mm, erect, elliptic-ovate, reddish green, pink with paler pink or white margins, apex obtuse to subacute. Scales 0.15 mm long, narrow-linear. Fruit (Follicles) smooth. Seed 0.2-0.35 mm, orange-brown, elliptic-oblong.

Flowering:

Late July to December

Fruiting:

August to February

Threats:

Weed invasion of the seasonally damp, summer dry habitats this species requires is the main threat. Currently most of the larger populations are found in sites where browsing animals such as sheep and cattle keep down competing weed species, or in high altitude habitats still relatively free of weed species. The species small size, and annual habit, mean that it is easily overlooked, so some of its former habitats have been destroyed in ignorance through coastal development.

For more information, visit:

http://nzpcn.org.nz/flora_details.asp?ID=61



Caption: in cultivation, ex Ahuriri Valley

Photographer: John Barkla



Caption: Sutton

Photographer: John Barkla

Gratiola concinna

Threat Status (2009):

Nationally Vulnerable

Distribution:

Indigenous. Known in New Zealand from the North and South Islands but very local. In Australia it is an uncommon plant, and forms matching the New Zealand plant have only been reliably reported from Tasmania.

Habitat:

Muddy hollows in forest clearings, streambanks or in turf at the margins of lakes, rivers or ponds; sometimes aquatic at edge of shallow lakes or rivers.

Features:

Procumbent, widely creeping much branched and intertangled perennial herb forming leafy mats; branches slender, rooting at nodes, filiform, usually ascending at apices, up to 200 mm long, 0.7–0.9 mm diameter, dark green, dark green purple-spotted or maroon-red, puberulent to ± glabrescent hairs at apices initially copious, sub-retorse to patent, eglandular, 0.8–1.1 mm long, soon shedding leaving sparse to abundant subsessile to sessile, viscid, glandular admixed with sparse, longer eglandular hairs on older stems, internodes variable, usually 2.4–4.6 mm, sometimes very widely spaced, especially on longer stems. Leaves fleshy, nerves not evident, sessile, rarely shortly petiolate, petioles 0.8–1.2 mm, glabrous or puberulent, hairs as for stems; lamina 4.0–7.6 × 2.0–5.8 mm, oblong, obovate to suborbicular, apex obtuse, ± obtusely toothed rarely subentire or entire, yellow-green, dark green, usually with purple or maroon blotching or stitch marks near teeth, or rarely with upper lamina surface irregularly maroon spotted, puberulent, hairs mostly sessile to subsessile glandular, admixed with sparse to sometimes copious 0.6–1.0 mm, eglandular hairs. Flowers 10–12 mm long, solitary in bract axils, faintly sweet-scented. Pedicels 2.0–2.5 mm, distal end wider than proximal, puberulent, glabrate, hairs patent, eglandular. Bracteoles 1.2–2.1 × 0.5–1.1 mm, linear-oblong, oblong, apex obtuse to subacute, green with dark maroon apex, puberulent, hairs patent, 0.5–0.8 mm eglandular. Sepals 2–3, free, erect, 0.5–0.8 × 0.2–0.6 mm, narrowly-lanceolate to oblong, acute, green with dark maroon apex, puberulent, hairs patent, 0.3–0.6 mm eglandular. Corolla white, throat yellow or pale pinkish yellow; tube 7.6–8.2 mm long, funnelform, veins 10–16 pale pink or maroon, externally eglandular hairy along veins, hairs patent, 0.3–0.6 mm; inner surface densely covered in tangled, weakly flexuous, eglandular, yellow or pink, hairs 0.4–0.8 mm long; lobes 5, 3.2–4.0 × 4.0–4.6 mm, orbicular to broadly obovate, emarginate, widely spreading to decurved at anthesis, glabrous. Stamens 2, filaments 1.8–2.2 mm, white, anthers 0.4–0.6 mm, white, pollen white; staminodes 1–2, 1.6–1.8 mm, white. Ovary narrowly ellipsoid, 0.3–0.6 × 0.1–0.2 mm, style 1.8–2.0 mm, caducous, stigma rather broadly 3-lobed, perpendicular to style. Capsule ovoid 3.5–4.0 mm diameter, 4-valved, septicial and loculicidal to base. Seed 0.4–0.7 mm, oblong, narrow-oblong, 2–4-angled, dark brown, surface glossy, deeply reticulate, mucilaginous when fresh.

Flowering:

August–December

Fruiting:

March–July

Threats:

Habitat loss through wetland drainage and competition from introduced weeds.

For more information, visit:

http://nzpcn.org.nz/flora_details.asp?ID=169



Caption: Hangatiki Scenic Reserve

Photographer: Peter de Lange



Caption: Near Lake Pukaki

Photographer: Melissa Hutchison

Isolepis basilaris

Common Name(s):

pygmy clubrush

Threat Status (2009):

Nationally Endangered

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.

Flowering:

September to November

Fruiting:

December to April (but seedheads long persistent)

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 vehicles.

For more information, visit:

http://nzpcn.org.nz/flora_details.asp?ID=129



Caption: Close up of plants

Photographer: Andrew Townsend

Lobelia carens

Common Name(s):

None Known

Threat Status (2009):

Nationally Endangered

Distribution:

Endemic. New Zealand: North Island (South Auckland, Gisborne, Hawke's Bay, and

Habitat:

Lowland to subalpine. A species of the margins of lake, tarn and ephemeral wetlands, stream banks, and seepages in tussock grassland, where it grows with other short turf and small herb species.

Features:

Creeping, prostrate, moderately hairy to occasionally glabrous herb; rooting at leaf nodes. Leaves alternate, upright to spreading; lamina 2.5–7.2 × 1.5–6.0 mm, orbicular, suborbicular, to broadly elliptic, often oblanceolate to oblong in shade, green, blotched purple-brown, moderately hairy, hairs < 0.2 mm long and patent, rarely glabrous, midvein faint, lateral veins faint to obscure, margin with 5–7 prominent denticles or shallow teeth, apex obtuse to subacute; petiole 0.5–1.5 × 0.2–0.4 mm. Flowers hermaphrodite, resupinate, axillary, solitary; peduncle 0.5–27.0 × 0.3–0.6 mm. Calyx with short tube adnate to ovary; lobes 5, 1.2–1.5 × 0.4–0.8 mm, green, narrow triangular to lanceolate, underside glabrous to moderately hairy, upper surface glabrous or occasionally sparsely hairy near apex; apex subacute and with conspicuous, translucent, tip. Corolla up to 9.5 mm long in late bud, 6.0–8.0 mm diameter when open, white, with two green or yellow-green markings between the sinus of the front three corolla lobes, without conspicuous purple-violet blotches at the base of the three front corolla lobes; tube 2.5–4.5 mm long, 1.0–2.0 mm wide, fused, under surface glabrous to sparsely hairy, upper surface sometimes sparsely hairy; lobes 5, 2.4–5.0 × 0.8–1.5 mm, narrow-lanceolate, recurved, apex subacute. Filaments 3.0–3.6 × 0.2–0.3 mm, fused below anthers, adnate from base to upper half of the corolla tube, white occasionally flushed pale blue in distal part, becoming translucent and flushed green toward proximal part. Anthers united into a tube around style, 0.9–1.5 mm long, purple-brown, curved over at top. Nectary annular, 0.2–0.4 mm high, green to yellow-green; apex sparsely hairy. Ovary 1.5–2.5 × 1.1–1.4 mm, green, usually moderately hairy, occasionally glabrous, apex obtuse. Style 4.3–5.5 × 0.2–0.4 mm, white to pale green, exerted beyond anthers. Stigma bilobed, lobes 0.3–0.7 × 0.4–1.0 mm, pink. Capsule 2.4–3.5 × 2.0–2.8 mm, green, often flushed purple-brown; thin-walled, seeds visible through wall, indehiscent and without apical valves, disintegrating with age; apex crowned with persistent style base; base obtuse to slightly cuneate. Seed broadly elliptic to obovate-oblong, olive green, semi-glossy, 0.4–0.5 mm long.

Flowering:

Throughout the year

Fruiting:

Throughout the year

Threats:

Known from about 10 sites – a few populations are within National Parks and are probably secure, otherwise the rest of the wetland habitats it occupies have been or continue to be modified by naturalised species.

For more information, visit:

http://nzpcn.org.nz/flora_details.asp?ID=2370



Caption: Lake Wairarapa wetlands. Apr 2008.

Photographer: Jeremy Rolfe from a specimen collected by Pat Enright.



Caption: Lake Wairarapa wetlands. Apr 2008.

Photographer: Jeremy Rolfe from a specimen collected by Pat Enright.

Pterostylis micromega

Common Name(s):

Swamp Greenhood

Threat Status (2009):

Nationally Critical

Distribution:

Endemic. North, South and Chatham Islands. Once known from Kaitaia to Wellington, North Nelson and the Chatham Islands. The species is still present in the Huntly Basin, (Waikato), Volcanic Plateau, near Wanganui and in the Wairarapa. A plant was also known, until recently from Knuckle Hill, North West Nelson. That plant appears to have died out naturally. It was last reliably recorded from the Chatham Islands in the late 1800s.

Habitat:

Coastal, lowland to subalpine (0 - 1000 m a.s.l.). A plant of bogs, fens and swamps, ranging from acidic to eutrophic. It often forms colonies of 5-30 plants, ranging from large-leaved non-flowering juveniles through to flowering adults. It can be found growing under willows (*Salix* spp.).

Features:

Orchid 150-380 mm tall. Stem smooth, lower internodes short, becoming progressively longer toward apex. Basal leaves usually in a somewhat loose rosette, though when in exposed conditions then a compact rosette; petiole 5-10 mm; lamina 35-50 mm, pale green to grey-green, broad-elliptic, subacute, margins often but not always finely undulate. Upper leaves sessile, ovate to narrowly ovate, channelled, and weakly keeled, becoming sheathing near flower, upper most often reaching or just overtopping flower. Flower conspicuous, solitary, erect, perianth white or cream. Dorsal sepal, green, 25-40 mm, arcuate, apex acuminate to shortly caudate, ascending to decurved; lateral sepals green and white striped at base, diverging at a narrow angle, apex caudate, overtopping galea. Petals white, shorter than dorsal sepal, acuminate. Labellum red-brown, narrow-triangular, arched, markedly protruding, apex narrowly obtuse. Column much shorter than labellum; stigma narrow-oblong, flat.

Flowering:

November - February

Fruiting:

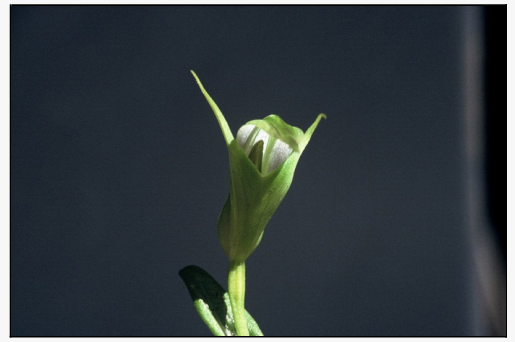
November – March

Threats:

Drainage of habitat; habitat invasion by weeds (in the Waikato royal fern (*Osmunda regalis*) seems to be the main weed threat); unrestricted wetland access by stock, and wild animals such as deer, pigs, and possums have proved to be a problem at some sites. Nevertheless this species requires some habitat disturbance to thrive, and soon succumbs if its habitat becomes to densely vegetated.

For more information, visit:

http://nzpcn.org.nz/flora_details.asp?ID=36



Caption: Opuatia Wetland, January 1991

Photographer: G. M. Crowcroft



Caption: *Pterostylis micromega*

Photographer: Gillian Crowcoft, December 1990, Opuatia Wetlands

Definitions of botanical terms

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

Glossary

Term	Definition
Abaxial	The side away from the axis.
Acerose	Narrow with a sharp stiff point.
Achene	A simple, dry, one-seeded (one-celled) fruit
Acicular	Needle-shaped.
Acidic	Having a low pH, opposite of basic or alkaline.
Acroscopic	Pointing towards the apex
Acuminate	Gradually tapered to a point. Sharply pointed.
Acute	Pointed or sharp, tapering to a point with straight sides.
Adnate	Attached by the whole width; lacking a stalk
Adventive	A plant that grows in the wild in New Zealand but which was introduced to the country by humans.
Agglutinated	Stuck together.
Allelopath	An organism that releases compounds that are toxic to other species.
Allelopathy	An organism that releases compounds that are toxic to other species.
Alternate	Attached singly at each node but changing from one side of a stem to the other.
Alveolate	Honeycombed with ridged partitions.
Amplexicaul	clasping the stem
Anamorph	Asexual fruiting stage, usually of an ascomycete fungus.
Anastomosing	Rejoining after branching, as in some leaf veins.
Annual	A plant that completes its complete life cycle within the space of a year
Annual evergreen	Plants that lose their over-wintering leaves rapidly in the first half of the growing season. Annual evergreens never present a leafless appearance, but are closer in a functional sense to a deciduous plant than they are to multi-annual evergreens.
Annulus	Line of thickened cells on a sporangium which governs the release of spores
Anterior	Towards the front.
Anther	The pollen-bearing portion of the stamen.
Antheridium	Male reproductive organ formed on the prothallus of a fern
Anthesis	When the flower is fully developed and functioning. The time of pollination or bloom.
Apex	Tip; the point furthest from the point of attachment.
Apices	Tips; the point furthest from the point of attachment
Apiculate	A short slender and flexible point.
Apiculus	A small, slender point.
Apomixis	A form of reproduction whereby seed is formed without the usual mode of sexual fusion
Appressed	Pressed against another organ or surface.
Aquatic	Growing, or living in, or frequenting water. Applied to plants and animals and their habitats. Opposite of terrestrial (land living).
Archegonium	Female reproductive organ of a fern formed on the prothallus
Arcuate	Curved into an arch.
Aril	An often fleshy appendage on the outside of a seed.
Artificial thinning	Selectively removing vegetation to create gaps to facilitate natural invasion of native plants, or to plant later successional plants.
Ascending	Growing obliquely upward.
Asexual	Vegetative reproduction, lacking sexual involvement by sperm or egg cells
Auricle	A small, ear-shaped appendage.
Auriculate	Small and ear-shaped
Autogamous	Self-fertilising flowers.
Autotrophic	Of or relating to organisms (as green plants) that can make complex organic nutritive compounds from simple inorganic sources by photosynthesis
awn	A stiff or bristle like projection often from the tip or back of an organ
Axil	The upper angle between the leaf and the stem.
Axis	The longitudinal supporting structure around which organs are borne, e.g., a stem bearing leaves.
Barbellate	Barbed, having or covered with protective barbs or quills or spines or thorns or setae
Basal	At the base.
Basispicopic	Pointing towards the base
Beak	A prominent extension of an organ
Bifid	Deeply split into two lobes.
Bifurcate	Divided into two.
Biosecurity	Preventing, eradicating, controlling and managing risks posed by pests and diseases.

Term	Definition
Biotic	Living parts of the environment
Bipinnate	With each primary pinna divided to the midrib into a secondary pinnae
Biserrate	Doubly serrate.
Blade	The flattened part of a leaf.
Blunt	Not pointed at the ends
Bog	A quagmire covered with specialized plants including sphagnum moss, grass, sedges, rushes, sundews, umbrella ferns & other plants, has wet, spongy ground, a small marsh, plant community on wet, very acid peat. Fed only by rainfall.
Bottleneck	A genetic term; refers to the fact that in smaller populations there could be lower genetic variability
Brachyblasts	Short shoots
Bract	A reduced leaf or leaf-like structure at the base of a flower.
Bracteate	Leaf or leaf-like structure reduced at the base of a flower.
Bracteolate	With small bracts.
Bracteole	A small bract.
Bracteoles	Bracts directly below the flower
Brevideciduous	Brief (1 month or less) loss of most leaves from the canopy just before flowering or during flushing of a new cohort of leaves.
Bryophyte	Plant group including mosses, liverworts and hornworts
Bryophytes	Plant group including mosses, liverworts and hornworts
Bulbil	A bud produced vegetatively on the stem or frond that is capable of breaking off and growing into a new plant
Bullate	With rounded projections covering the surface as if blistered
caespitose	growing in + dense tufts
Calli	Circular, warty, stalked thickenings commonly found on the lip (labellum) of the orchid (plural of callus).
Callose	Hardened or thickened.
Callus	Stalked thicken on the lip of the orchid.
Calyx	The group of sepals, or outer floral leaves, of a flower
Campanulate	Bell-shaped.
Canaliculate	With longitudinal channels or grooves.
Canopy	The uppermost cover formed by the branches and leaves of trees or the spread of bushes, shrubs and ground covers.
Canopy closure	Stage where canopies of shrub and tree species meet.
Canopy manipulation	Selectively removing vegetation to create gaps to facilitate natural invasion of native plants, or to plant later successional plants.
Capillary	Hair-like
Capitula	A type of compound inflorescence commonly found in daisies i.e. the daisy flower head
Capitulum	A dense head-like inflorescence of many flowers as occurs in most Asteraceae (daisies)
Capsule	A dry fruit formed from two or more fused carpels that splits open when ripe.
Carbon sinks	Carbon locked away, or sequestered e.g. by trees
Carpel	One unit of the female part of a flower that consists of a basal seed-bearing ovary joined to a receptive stigma by a stalk-like style.
Cauda	Tail-like appendage. (pl. caudae; adj. caudate)
Cauline	Belonging to the stem, as in cauline leaves emerging from the stem.
Cerise	Bright or deep red.
Chartaceous	Having a papery texture.
Chlorophyll	The green pigment of plants.
Chlorotic	Lacking chlorophyll, therefore yellowish.
Cilia	Short small hair-like structures on a cell or microorganism
Ciliate	With small hairs.
Ciliolate	Diminutive of ciliate.
Cladode	Flattened stem with the function of a leaf
Cladodes	Usually flattened, photosynthetically active branches, these may be leaf-like (e.g., Phyllocladus) or branch-like (e.g., Carmichaelia)
Clavate	Club-shaped, gradually widening towards apex.
Cleft	Irregularly coarsely lobed.
Cleistogamous	Flowers that self-fertilise without opening.
Coherent	Sticking together of like parts.
Column	Stamen and stigmas fused to form a single organ.
Composite	many small flowers tightly packed together e.g., daisy flowers.
Compound	Composed of several similar parts (cf simple)

Term	Definition
Concave	Curved inward.
Concolorous	Of the same colour.
Conical	Cone-shaped.
Connate	Fusion of like parts.
Conspecific	Individuals of the same species.
Cordate	Heart-shaped with the notch at the base.
Coriaceous	Leather-like; thick, tough, and somewhat rigid.
Corolla	The whorl of petals of a flower.
Corymb	Modified raceme where stalks of lower flowers are elongated to same level as the upper flowers.
Cosmopolitan	A species or other taxonomic group that is distributed widely throughout the world.
Costa	The midrib
Crenate	With rounded teeth (bluntly toothed) along the margin.
Crisped	Margin tightly wavy or crinkled, curled or wavy.
Cristate	With a crest.
Crown	The growing point of an upright rhizome or trunk. This usually produces a tuft or ring of fronds.
Crura	The two small projections at the mouth of a utricle in Carex
Cucullate	Hood-shaped.
Culm	The erect stem of a grass.
Cuneate	Wedge-shaped.
Cupular	Cup-shaped.
Cuttings	Stems taken from plants for propagation
Cyathium	A cup-like structure that surrounds the inflorescence in Euphorbia
Cyme	Inflorescence at the terminus of a branch and where new flowering branches emerge laterally below the flower.
Cytorace	Populations (or infraspecific taxa) that differ in chromosome number or chromosome morphology, e.g., <i>Nematoceras trilobum</i> agg. has two cytotypes, a diploid and a tetraploid (in which the chromosomes are doubled).
Cytotype	Populations (or infraspecific taxa) that differ in chromosome number or chromosome morphology, e.g., <i>Nematoceras trilobum</i> agg. has two cytotypes, a diploid and a tetraploid (in which the chromosomes are doubled).
Deciduous	Marked leaflessness in winter, and greater than 90% leaves lost by beginning of spring flush.
Decrescent	Diminishing.
Decumbent	With a prostrate or curved base and an erect or ascending tip.
Decurrent	Attached by a broadened base.
Decurved	Curved downward.
Deflexed	Bent abruptly downward.
Dehiscence	The time of opening at maturity to release the contents, e.g., a capsule releasing the seeds.
Dehiscent	Splitting open at maturity to release contents (of a fruit).
Deltoid	Shaped broadly like an equilateral triangle.
Dentate	Toothed along the margin with the teeth pointing outward, not forward.
denticles	minute teeth
Denticulate	having a very finely toothed margin
Dichotomous	Divided into two equal branches.
Digitiform	Finger-like.
Dioecious	Having male and female flowers on separate plants of the same species.
Diploid	With two complete sets of chromosomes in each cell.
Disarticulating	Separating at a joint.
Discoid	Disc-shaped.
Disjunct	A species or other taxonomic group that occupies areas that are widely separated and scattered and therefore have a discontinuous distribution.
Distal	Toward the apex, away from the point of attachment (cf. proximal).
Distichous	In two rows on opposite sides of the axis.
Divaricating	Branching at a very wide angle with stiff intertwined stems.
Domatia	small structures on the lower surface of a leaf in some woody dicotyledons, located in the axils of the primary veins and usually consisting of depressions partly enclosed by leaf tissue or hairs.
Dorsal	Of the back or outer surface relative to the axis. (cf. ventral)
Drupe	A stone fruit, the seed enclosed in a bony covering (endocarp) which is surrounded by a + fleshy layer (mesocarp)

Term	Definition
Early successional species	Plants which are able to colonise an open area after disturbance but which are often temporary and are replaced by taller plants in time and shaded out.
Echinulate	having sharply pointed spines.
Ecological district	A characteristic landscape and biological community defined in the PNA (Protected Natural Area) programme.
Ecological restoration	Attempt to reinstate original (pre-disturbance) state of a habitat, plant community or ecosystem.
Ecosourced	Plants sourced from seed collected from similar naturally growing plants in the area of the planting site.
Ecosourcing	Using native plants grown from locally grown seeds. Eco-sourced plants help to preserve the ecological distinctiveness of an area, and ecosourced plants fare better and are adapted to survive in the local conditions.
Eglandular	Without glands.
Ellipsoid	Elliptic in long section and circular in cross-section.
Elliptic	Broadest at the middle
Emarginate	With a notch at the apex.
Emarginated	Having a shallow notch at the tip, as in some petals and leaves.
Emergent	In an aquatic sense - wetland herbs that are rooted in the substrate below water level, but carry leaves and stems above the water level e.g. rushes and raupo. Found on the shallow margins of lakes, ponds and waterways .
Emergent marginals	An aquatic plant having most of its structure above water. Other aquatic plants are submerged or floating.
Endemic	Unique or confined to a place or region, found naturally nowhere else.
Endophyte	An endosymbiont (usually a bacterium or fungus) that lives within a plant for at least part of its life without causing any apparent disease.
Endophytes	Endosymbionts (usually bacteria or fungi) that live within plants for at least part of their lives without causing any apparent disease.
Endosperm	The nutritive tissue of a seed, consisting of carbohydrates, proteins, and lipids.
Enrichment planting	Returning to a revegetation site and creating gaps, or filling existing gaps, with different plants of plants, usually later successional plants which may not have survived being planted in the first phases of the project.
Ensiform	Sword shaped
Entire	Smooth. Without teeth, notches or divisions.
Entomophilous	Pollinated by insects.
Epicalyx	Calyx-like structure outside, but close to, the true calyx.
Epigeal	Growing on or close to the ground or emerging from the ground after germination (often used for cotyledons).
Epiphyte	A plant that grows upon another plant but is not parasitic and does not draw nourishment from it.
Epiphytic	Growing upon another plant but not parasitic and not drawing nourishment it
Erose	Irregularly toothed, as if gnawed.
Estuarine	Pertaining to the meeting of freshwater and seawater wetlands.
Ethnobotany	The study of people's classification, management and use of plants.
Eusporangia	Sporangia that arise from groups of epidermal cells
Evanescent	Lasting a very short time or running a short distance.
Ex situ	Away from the place of natural occurrence.
Ex-situ	Maintenance of plants as live specimens or propagules in cultivation as insurance against the loss of wild populations and as source for material for translocation.
Excurrent	Extending beyond apex.
Extravaginal	Outside an enclosing sheath
Falcate	Hooked or curved like a sickle.
Fastigiata	Branches erect and close to central axis.
Fen	A type of wet land that accumulates peat deposits. Fens are less acidic than bogs, deriving most of their water from groundwater rich in calcium and magnesium.
Ferruginous	Rust-like (a colour term)
Fertile frond	Fronds that bear sporangia.
Filamentous	Resembling a filament.
Filiform	Thread like, resembling a filament.
Filiramulate	Branching at a very wide angle with stiff intertwined stems.
Fimbriae	Fringes.
fimbriate	With fringes.
Flabellate	Fan shaped.
Flaccid	Limp, not rigid, flabby.
Flange	A projecting rim.
Flexuose	With curves or bends.
Floccose	Having tufts of soft woolly hairs
Floret	A small flower, usually one of a cluster - the head of a daisy for example.

Term	Definition
Foliaceous	Leaf-like.
Foliate	Having leaflets.
Founder effect	When a small number of plants (and therefore their genes) from a larger population are selected some genetic information is lost.
Fron	A leaf, the complete leaf of a fern including the stipe and lamina
Fulvous	Orange–yellow.
Funneliform	Funnel-shaped.
Fusiform	Broadest near the middle and tapering toward both ends.
Galea	Helmet- or hood-shaped.
Galeate	Shaped like a helmet or hood.
Gametophyte	A plant that produces sperm and egg cells and in which sexual reproduction takes place - in ferns this is known as the prothallus
Gene pool	The mixture of all genes and gene variations of a group or population.
Genetic diversity	The variety of genes in a plants or populations.
Genetic variation	Differences displayed by individuals within a plant which may be favoured or eliminated by selection.
geniculate	abruptly bent
Genus	A taxonomic rank of closely related forms that is further subdivided in to species (plural = genera). In a scientific name (e.g., <i>Sycos australis</i>), the first word is the genus, the second the species.
Gibbous	Swollen or enlarged on one side, as in a gibbous moon.
Glabrescent	Lacking hair or a similar growth or tending to become hairless
Glabrous	Without or devoid of hairs, smooth.
Gland	A structure that secretes a sticky or oily substance.
Glandular	A structure that secretes a sticky or oily substance.
Glaucous	Covered with a fine, waxy, removable powder that imparts a white or bluish cast to the surface.
Gley	A soil prone to seasonal inundation.
Globose	Globe-shaped.
Glume	One of two bracts at the base of a grass spikelet.
Groundwater	Groundwater is the water beneath the surface that can be collected with wells, tunnels, or drainage galleries, or that flows naturally to the earth's surface via seeps or springs. Groundwater is the water that is pumped by wells and flows out through springs.
Gumland	
Gymnosperm	Plants in the class Gymnospermae that have seeds which are not enclosed in an ovary.
Gynodioecious	A species population containing plants that produce bisexual (perfect) flowers, and plants that produce only female (pistillate) flowers.
Gynoecium	The female reproductive organs of a flower; the pistil or pistils considered as a group. Means literally "womans house" i.e., the overall structure that contains the female sex organs
Hastate	Spear like. Shaped like an arrowhead, but with basal lobes pointing outward rather than downward.
Haustorium	The absorbing organ of a parasite or hemiparasite
Hemi–parasite	Obtains water and nutrients from the roots of other plants but also manufactures food through photosynthesis.
Hemi–parasitic	Obtaining water and nutrients from the roots of other plants then manufacturing food through photosynthesis.
Herbarium	The place where collections of dried/pressed plants are kept.
Hermaphrodite	Having both male and female sexual characteristics and organs.
Heteroblastic	Exhibiting differences in leaf shapes or forms in juvenile and adult phases of the plant.
Heteroblasty	The state of being heteroblastic (i.e., exhibiting differences in leaf shapes or forms in juvenile and adult phases of the plant).
Hirsute	Hairy.
Hyaline	Membranous, thin and translucent.
Hybrid	An individual that is the offspring of a cross between two different varieties or species.
Hybridise	Breeding with a member of a different plant or type.
Hydrophyte	A plant species adapted to growing in or on water or in wet situations. Aquatic or semi-aquatic.
Hymenium	The fertile, spore–bearing layer of a fruitbody.
Hypanthium	A ring–like, cup–shaped, or tubular structure of a flower on which the sepals, petals, and stamens are borne.
Imbricate	Overlapping.
imbricating	Overlapping.
Imparipinnate	Odd–pinnate, a leaf shape; pinnate with a single leaflet at the apex.
In-situ	On site conservation relating to the maintenance of plants in the wild.
Inbreeding	Genetic similarity in offspring of closely related individuals.
Incoherent	Not sticking together.
Incursion	Entrance of a pest into an area where it is not present

Term	Definition
Indumentum	A covering of fine hairs (or sometimes scales)
Indusia	A membrane covering the sporangia of a fern
Indusium	A thin tissue that covers the sorus in many ferns
Inflorescence	The arrangement of flowers on the stem. A flower head.
Infundibuliform	Funnel-like.
Interkeel	The space between the keel and the leaf blade
Internode	The part of an axis between two nodes; the section of the stem between leaves.
Internodes	Part of a stem between two nodes.
Intramarginal	Within or near the margin.
Involucral bracts	The scales surrounding the flower head or capitula.
Involucre	A group of bracts surrounding a flower head.
Involute	With margins rolled inward toward the upper side.
Irritable	Responding to touch.
Jugate	Paired.
Juvenile	A plant of non-reproducing size.
Keel	A prominent or obvious longitudinal ridge (as in a boat).
Labellar	A lip; in orchid flowers referring to the middle petal which usually differs in size, shape or ornamentation from the two lateral petals.
Labellum	A lip; in orchid flowers referring to the highly modified middle petal which usually differs in size, shape or ornamentation from the two lateral petals.
Lacinia	A jagged lobe.
Laciniae	Jagged lobes.
Laciniate	Cut into narrow, irregular lobes or segments.
Lacustrine	Of or having to do with a lake, of, relating to, or formed in lakes, growing or living in lakes.
Lamina	The expanded flattened portion or blade of a leaf, fern frond or petal.
Lanceolate	Lance-shaped; of a leaf several times longer than wide with greatest width about one third from the base, tapering gradually to apex and more rapidly to base
Lateral	On or at the side.
Lax	With parts open and spreading, not compact.
Laxly	With parts open and spreading, not compact
Leaflet	One section of a compound leaf.
Lemma	The lower of two bracts enclosing the flower in grasses.
Lenticillate	Bark that is covered in fine lenticles (breathing pores)
Ligulate	Strap-like, tongue-shaped
Ligule	The membrane between the leaf and the stem in grasses
Linear	Long and narrow with more or less parallel sides.
Littoral	Occurring at the border of land and sea (or lake). On or pertaining to the shore. The shallow sunlit waters near the shore to the depth at which rooted plants stop growing.
Lobe	A recognisable, but not separated, rounded division or segment of a leaf or pinna. Used to describe ferns and leaves in <i>Cotula</i> and <i>Leptinella</i> .
Lobule	A small lobe or sub-division of a lobe
Lustrous	Glossy, shiny.
Lycophytes	Seedless vascular plants that belong to the phylum Lycophyta (characterised by microphylls -primitive leaves found in ancient plants).
Lyrate	Pinnatifid or pinnatisect terminal lobe much larger than lower lobes.
Maculate	Blotched or spotted.
Mangrove	Coastal wetland dominated by Manawa or mangrove <i>Avicennia marina</i> var. <i>resiifera</i> . Northern New Zealand only, salt marsh replaces it further south.
Margin	The edge or border of a leaf
Marine	Pertaining to the sea and saltwater systems.
Marsh	A tract of wet land principally inhabited by partially-submerged herbaceous vegetation. Has fewer woody plants than swamplier habitats.
Mealy	Dry, powdery, crumbly.
Median	In the middle.
Membranous	Very thin, like a membrane.
Mid-lobe	The middle part into which a leaf is divided.
Midrib	The central or principal vein of a leaf or pinna of a fern.
Mire	Synonymous with any peat-accumulating wetland. Term covers bogs and peaty swamps, fens, carr, moor, muskeg and peatland. Term excludes marsh which is non-peat forming.
Molecular techniques	Where proteins and genes are used to investigate plant relationships
Monitoring	Recording of quantitative data over time to document changes in condition or state of species or ecosystems.
Monoecious	Having male and female flowers on the same plant of the same species.

Term	Definition
Montane	Land between 300 and 800 metres above sea level.
Mucronate	Tipped with a short, sharp, point.
Mucronulate	Having a very small mucro; diminutive of mucronate.
Multi-annual evergreen	Overlapping annual cohorts of leaves always present.
Multifid	Cleft into many lobes or segments
Multiseptate	With many septa.
Mycorrhiza	A symbiotic relationship between a fungus and a plant.
Mycorrhizal associations	Symbiotic association between fungi and plant roots which assists plant health by allowing increased ability for uptake of nutrients and promote plant growth.
Napiform	A long swollen but tapering root – like a parsnip, or carrot.
Native	Naturally occurring in New Zealand (i.e., not introduced accidentally or deliberately by humans).
naturalised	Referring to plants that have escaped from cultivation (including gardens or forest plantations) and can now reproduce in the wild (without human assistance)
Nectary	Organ that produces nectar.
Nerve	Prominent vein or rib.
Nerves	Strands of conducting and usually strengthening tissue in a leaves or similar structures
Net veins	Veins that repeatedly divide and re-unite.
Net venation	Feather-like or hand-like venation on a leaf.
Nivalis	Growing at high altitudes. From Latin: nivalis, snowy etc. from nix, nivis, snow.
Node	The point at which leaves, branches or roots arise on a stem.
Ob-	Prefix meaning inverted, in reverse direction.
Obcordate	Heart shaped with the notch at the apex.
Oblanceolate	Tapering and widest towards the apex or inversely lanceolate.
Oblong	Rectangular.
Obovate	Roughly elliptical or reverse egg shaped and widest near the apex (i.e., the terminal half broader than the basal half).
Obtuse	Blunt or rounded at the apex, with the sides meeting at an angle greater than 90°.
Operculate	With a small lid.
Opposite	A pair of organs attached at nodes in pairs on either side of a stem or axis.
Orbicular	Almost or approximately circular.
Outbreeding depression	A reduction in vigor of offspring from distant parents. It can occur when a locally adapted population is moved and mixed with plants adapted to different conditions.
Outer canopy deciduous	Marked reduction in leaf number in the outer canopy in exposed high light environments over winter.
Ovary	Part of a flower containing the ovules and later the seeds.
Ovate	Egg-shaped and widest at base.
Ovoid	Oval; egg-shaped, with rounded base and apex.
Pakihi	A term which in its strict sense refers to open clears within forest dominated by low scrub and rushes. However, more usually used to refer natural and induced wetlands and their associated shrublands. A vernacular most frequently used in the West Coast for impoverished soils and their associated peats, left after forest has been cleared
Palea	The small upper bract enclosing the flower of a grass
Palmately	Radiating from a point, as fingers radiating from the palm of a hand.
Palustrine	Pertaining to wet or marshy habitats. Term covers mires and marshes
Pandurate	Fiddle-shaped.
Panicle	Highly branched (multiple raceme).
Papilla	A short rounded projection.
Papillae	A soft, fleshy projection, usually small and nipple-like.
Papillate	With short rounded projections.
Papillose	Warty, with short rounded projections or gland-dotted
Parallel venation	Veins are parallel along leaf.
Parasite	An organism that derives all its nourishment from its host.
Patent	Spreading or expanded, e.g., spreading petals.
Peat	A mass of partially carbonised plant tissue formed by partial decomposition in water of various plants and especially of mosses of the genus Sphagnum, widely found in many parts of the world, varying in consistency from a turf to a slime used as a fertiliser, as stable litter, as a fuel, and for making charcoal. Partially carbonized vegetable matter saturated with water; can be used as a fuel when dried. A type of soil deriving from dead organic material situated in a wet area, where the reduced amount of [[oxygen available in the wet conditions results in the organic material not decomposing as much as it usually would do so in the presence of more oxygen. Used in growing media. Represents an important carbon sink –drainage of peat releases large amounts of carbon (CO ₂) to the atmosphere.

Term	Definition
Pedicel	The stalk of a single flower in an inflorescence or fruit (either in a cluster or existing singularly).
Peduncle	The stalk of a solitary flower or the main stalk of an inflorescence or flower cluster.
Pedunculate	Describing fruits, which are borne on a stalk (a peduncle).
Pellucid	Transparent.
Peltate	Shield-like, with the stalk attached well inside the margin
Pendent	Hanging down from its support
Pendulous	Hanging or drooping.
Penicillate	With a tuft of hairs at the end, like a brush.
Perennial	A plant lasting for three seasons or more
Perianth	A collective term for the calyx (sepals or tepals) and corolla (petals) of the flower, especially when these are indistinguishable
Petal	Part of flower inside the sepals; usually coloured.
Petiolate	Having a petiole.
Petiole	Leaf stalk.
phloem	The vascular tissue in land plants that is primarily responsible for the distribution of sugars and nutrients manufactured in a shoot.
Photopoint	A monitoring technique where repeat photos are taken of the same scene from the same point over a period of time in order to quantify changes.
Pilose	Bearing long, soft hairs.
Pinna	A segment of a divided lamina that is classified as primary, secondary or tertiary according to the degree of dissection of the lamina.
Pinnae	Divisions of a pinnate leaf
Pinnate	With leaflets arranged regularly in two rows on either side of a stalk as in a feather; the lamina on a fern is divided into separate pinnae
Pinnatifid	Cleft more than halfway to the midrib. Not cleft all the way to the rachis.
Pinnatisect	Deeply cleft to the mid-rib.
Pioneer	Plant species are hardy species that should be planted first to establish a good canopy cover that restricts weed growth and promotes natural regeneration. In natural ecosystems these are the first plants to arrive and grow on a site.
Pistil	The female reproductive organ of a flower, consisting of an ovary, style, and stigma.
Pistillate	A flower with one or more pistils, but no stamens.
Plano-convex	Flat on one side, convex on the other.
Plumose	Feathery.
Podzol	Infertile, acidic soil, strongly leached to form a whitish-grey subsoil underlain by a layer enriched in iron, aluminium and organic matter; usually under forest in a wet temperate climate.
Pole	A subcanopy size individual with a long thin trunk and foliage tuft of a potential canopy tree.
Pollinia	Compact masses of orchid pollen.
Population enhancement	Increasing a population for a specific biological purpose, e.g., when a species is already present in an area but extra individuals are added to address a sex imbalance.
Porrect	Extending forward.
Procumbent	Lying and flat along the ground but not rooting
Propagate	To reproduce a plant by sexual (i.e., from seed) or asexual (e.g., from cuttings) means.
Prostrate	A general term for lying flat along the ground. This includes procumbent (that is lying and flat along the ground but not rooting) and decumbent (with a prostrate or curved base and an erect or ascending tip).
Provenance	The place of origin (of a plant that is in cultivation).
Proximal	Toward the base or point of attachment (cf. distal).
Pseudobulb	Thickened surface stem; usually looking like a bulb.
Pseudoterminal	Falsely terminal – as in a bud which appears to occupy a terminal position but does not
Puberulent	Minutely clad in short, soft hairs
Pubescence	Covering of soft, fine hairs
Pubescent	Covered in short, soft hairs.
Pungent	Ending in a stiff sharp point
Pustule	Small blister-like elevation.
Quadrante	Square, rectangular.
Raceme	An unbranched, elongated inflorescence with pedicellate flowers maturing from the bottom upward i.e., flowers attached to the main stem by short stalks.
Rachis	the axis of an inflorescence or of a compound leaf
Ray	An outer ring of strap-like florets in the head of Asteraceae (daisy) flowers.
Re-introduction	Translocating wild or cultivated individuals to sites where the taxon has been known to occur in the past, but from which it has disappeared.
Recurved	Curved backward.
Reflexed	Bent back on itself
Reniform	Kidney shaped.

Term	Definition
Repand	With a slightly wavy margin.
Replum	The outer structure of a pod in which the valves have dehisced (persists after the opening of the fruit)
Restiad	Area dominated by rush-like plants (collectively known as restiads) of the family Restionaceae. Includes Chatham Island and North Island Sporodanthus and oioi (<i>Apodasmia similis</i>)
Retrorse	Pointing backward.
Retuse	A shallow notch at the rounded or blunt apex of a leaf.
Rhizoid	Any of various slender filaments that function as roots in mosses and ferns and fungi.
Rhizomatous	With underground creeping stems.
Rhizome	An underground stem (usually spreading horizontally or creeping) or short and erect.
Rhombic	Diamond-shaped.
Rhomboid	Diamond shaped, nearly rhombic.
Riparian	Relating to or living or located on the bank of a natural watercourse (as a river) or sometimes of a lake or a tidewater.
Riparian margin	Refers to the edges of streams, rivers, lakes or other waterways.
Riparian plants	Refers to plants found growing near the edges of streams, rivers or other waterways.
Riparian zone	A strip of land next to streams, rivers, and lakes where there is a transition from terrestrial (land vegetation) to aquatic (water) vegetation. Also known as "berm".
Riverine	Pertaining to rivers, streams and such like flowing water systems.
Rootstock	A short, erect, underground stem.
Rosette	A radiating cluster of leaves.
Rostellum	In orchids, a modified stigma that prevents self-fertilisation.
Rosulate	A dense radiating cluster of leaves.
Rugose	Wrinkled.
Rugulose	Having small wrinkles.
Runner	A trailing stem that roots at the nodes.
Rupestral	Growing on rocks.
Rushes	A group of distinctive wetland plants. They have solid stems (grasses have hollow stems), true rushes <i>Juncus</i> sp. have rounded leaves.
Salt marsh	A coastal wetland, with specialized salt tolerant plants (halophytes).
Sapling	A juvenile tree that has reached the stage of 1 or 2 main stems but is still in the shrub layer.
Saprophyte	A plant lacking chlorophyll and living on dead organic matter.
Saprophytic	Lacking chlorophyll and living on dead organic matter.
Sarcotesta	The fleshy, often highly coloured outer layer of the seed coat in some species, e.g., titoki (<i>Alectryon excelsus</i>).
Scabrid	Roughened or rough with delicate and irregular projections.
Scale	Any thin, flat, membranous structure.
Scape	A leafless flower stem.
Scutiform	Shield-shaped.
Sedges	A group of grass-like or rush-like herbaceous plants belonging to the family Cyperaceae. Many species are found in wetlands some are forest floor plants. Leaves are usually angular. Hence the saying "rushes are round and sedges have edges".
Seedling	A newly germinated plant.
Self sustaining	Able to sustain itself, or replace itself, independently of management i.e. regenerate naturally
Self thinning	Natural tree death in a crowded, even-aged forest or shrubland.
Semi-deciduous	Partial leaflessness in winter, and greater than 50% leaves lost by the beginning of spring flush.
Sepal	Outer part of flower; usually green.
Serrate	Sharply toothed with teeth pointing forwards towards apex.
Sessile	Attached by the base without a stalk or stem.
Seta	The stalk of a fruiting moss capsule
Sheath	A portion of an organ that surrounds (at least partly) another organ (e.g., the tubular envelope enclosing the stem in grasses and sedges).
Silicles	The flattened usually circular capsule – compared with the narrow, elongated fruit (silique) – containing the seed/seeds. A term used almost exclusively for plants within the cabbage family (Brassicaceae)
Silique	A capsule, usually 2-celled, with 2 valves falling away from a frame (replum) bearing
Simple	Of one part; undivided (cf compound).
Sinuate	With a wavy margin.
Sinus	The space or recess between lobes; in hebes a gap between the margins of two leaves of an opposite pair that may be present in the bud before the pair of leaves separate.
Sorus	A cluster of two or more sporangia on the margin or underside of the lamina of a fern, sometimes protected by an indusium.
Spathulate	Spatula or spoon-shaped, a rounded blade tapering gradually to the base.
Spheroidal	Almost spherical but elliptic in cross section.

Term	Definition
Spicate	Arranged in a spike.
Spike	Flowers attached to main stem without stalks.
Spikelet	Collection of individual grass florets borne at the end of the smallest branch of the inflorescence.
Sporangia	Structure in which spores are produced
Sporangium	In ferns it is the sac or other structure containing spores.
Spore	A single-celled reproductive unit similar in function to that of the seed in a flowering plant.
sporophyte	The spore producing plant in ferns that is usually the visible part.
Stamen	The male reproductive organ of a flower where pollen is produced. Consists of an anther and its stalk.
Stamens	The male, pollen bearing organ of a flower.
Standing water	Where water lies above the soil surface for much of the year.
Stellate	Irregularly branched or star shaped.
Stigma	Female part of the flower that is receptive to pollen, usually found at or near the tip (apical end) of the style where deposited pollen enters the pistil.
Stipe	The stalk of a frond.
Stipitate	Borne on a stipe or stalk.
Stipulate	A leaf with stipules.
Stipule	A scale-like of leaf-like appendage at the base of a petiole, usually paired.
Stolon	A stem which creeps along the ground, or even underground.
Stoloniferous	Producing stolons
Stramineous	Chaffy, like straw or straw-colored.
Stria	A fine line or groove.
Striae	Fine lines or grooves.
Striate	Fine longitudinal lines or minute ridges
Style	The elongated part of the flower between the ovary and the stigma.
Sub-	A prefix meaning under, somewhat or almost.
Subglabrous	Very slightly, but persistently, hairy.
Suborbicular	Slightly rounded in outline
Substrate	The surface upon which an orchid grows.
Subtended	Immediately beneath, occupying a position immediately beneath a structure, i.e., flower subtended by bract
Subulate	Slender and tapering to a point.
Succession	Progressive replacement of one species or plant community type by another in an ecosystem.
Successional	Referring to species, plant communities or habitats that tend to be progressively replaced by another.
Succulent	Fleshy and juicy.
Summer-green	Used in New Zealand to indicate herbs or sub-shrubs that die down to a root stock or rhizomatous network.
Supplementary planting	Returning to a revegetation site and creating gaps, or filling existing gaps, with different plants of plants, usually later successional plants which may not have survived being planted in the first phases of the project.
Surface water	Water present above the substrate or soil surface.
Surveillance	Regular survey for pests inside operational and managed areas e.g. nurseries, stand-out areas on parks.
Survey	Collection of observations on the spatial distribution or presence or absence of species using standardised procedures.
Sustainable Land Management	The use of farming practices which are sustainable both financially and environmentally including management of nutrient runoff, waste disposal or stock effluent, reducing impacts of nutrients on waterways, preventing erosion and soil loss, and protecting native forest and wetland habitats from stock damage.
Swamp	Low land that is seasonally flooded; has more woody plants than a marsh and better drainage than a bog. They are more fertile and less acidic than bogs because inflowing water brings silt, clay and organic matter. Typical swamp plants include raupo, purei and harakeke (flax). Zonation and succession often leads through manuka to kahikatea swamp forest as soil builds up and drainage improves.
Symbiote	An organism that has an association with organisms of another species whereby the metabolic dependence of the two associates is mutual.
Symbiotic	The relation between two different species of organisms that are interdependent; each gains benefits from the other (see also symbiosis).
Sympatric	Occupying the same geographical region.
Synangia	Structures made up of fused sporangia
Synonym	A botanical name that also applies to the same taxon.
Systematics	The study of taxonomy, phylogenetics, and taxogenetics.
Tabular	Shaped like a rectangular tablet.
Taxa	Taxonomic groups. Used to refer to a group at any level e.g., genus, species or subspecies.
Taxon	A taxonomic group. Used to refer to a group at any level e.g., genus, species or subspecies.
Taxonomy	The process or science of classifying, naming, and describing organisms

Term	Definition
Tepal	An individual member of the perianth.
Terete	Cylindrical and tapering.
Terminal	At the tip or apex.
Ternatifid	Leaflets In threes,
Tetrad	A group of four.
Tomentum	A hairy covering of short closely matted hairs.
Translocation	The movement of living organisms from one area to another.
Trifid	Divided into three.
Trifoliate	Having three leaflets.
Trigonus	Three-angled
Tripinnate	With each secondary pinna divided to the midrib into tertiary pinnae
Triquetrous	Triangular in cross section and acutely angled.
Truncate	With the apex or base squared at the end as if cut off.
Tuberculate	Bearing small swellings.
Tubular	Tube-shaped.
turbinate	Top-shaped.
Turgid	Distended through internal pressure
Type locality	The place or source where a holotype or type specimen was found for a species.
Ultramafic	A type of dark, usually igneous, rock that is chemically dominated by magnesium and iron-rich minerals, the partially metamorphosed form of which is serpentinite.
Umbel	Umbrella like; the flower stalks arise from one point at the stem.
Undulate	Wavy edged.
Undulose	Wavy edged.
Unitubular	A tube partitioned once – literally one tube (compare – multitubular – many tubes)
Utricle	A thin loose cover enveloping some fruits (eg., Carex, Uncinia)
Valvate	Opening by valves.
Vascular plant	A plant that possesses specialised conducting tissue (xylem and phloem). This includes flowering plants, conifers and ferns but excludes mosses, algae, lichens and liverworts.
Velutinous	Thickly covered with delicate hairs; velvety.
Ventral	Of the front or inner surface relative to the axis. (cf. dorsal)
Vermiform	Worm-shaped.
Vernicose	Glossy, literally as if varnished, e.g., Hebe vernicosa has leaves than appear as if varnished
Verrucose	Having small rounded warts.
Verticillium	A fungus disease that will cause wilting and death.
Villous	Covered with long, soft, fine hairs.
Water table	The level at which water stays in a soil profile. The zone of saturation at the highest average depth during the wettest season.
Wetland	A site that regularly has areas of open water for part or all of the year, or has a water table within 10 cm of the surface for at least 3 months of the year. Wetland ecosystems support a range of plant and animal species adapted to a aquatic or semi-aquatic environment.
Whipcord	A shrub in which the leaves are reduced to scales that are close-set and pressed against the stem.
Whorl	A ring of branches or leaves arising at the same level around the stem of a plant.