Bog plants for Raumati Wetlands 2021

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

INTRODUCTION

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

This website was established in 2003 as a repository for information about New Zealand's threatened vascular plants. Since then it has grown into a national database of information about all plants in the New Zealand botanic region including both native and naturalised vascular plants as well as non-vascualr 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 encompases the Kermadec, Manawatawhi/Three Kings, North, South, Stewart Island/Rakiura, Chatham, Antipodes, Bounties, Snares, Auckland Campbell island/Motu Ihupuku and Macquarie.

ABOUT THE NETWORK

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

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

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

That work has included:

- Training people in plant conservation
- Publishing plant books, reports and posters
- Raising money for the David Given Threatened Plant Research Trust to pay for plant conservation research scholarships
- 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 Zeland mosses (Rolfe et al., 2016) as well as horworts and liverworts (de Lange et al., 2015).

Abrotanella caespitosa

Mt Burns, Southland. Photographer: Jesse Bythell

Rock and Pillar Range, January. Photographer: John Smith-Dodsworth

FAMILY
Asteraceae

AUTHORITY
Abrotanella caespitosa Petrie ex Kirk

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
Yes

ENDEMIC GENUS
No

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Herbs - Dicotyledonous composites

NVS CODE
ABRCAE

CHROMOSOME NUMBER
2n = 18

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

DISTRIBUTION
In the area of the Ruahine and Tararua Ranges and common on mountains of Central Otago.

HABITAT
Abrotanella caespitosa occur in montane to subalpine grassland, bog and herbfield.

LIFE CYCLE
Cypselae are primarily dispersed by wind (Thorsen et al., 2009).

ETYMOLOGY
abrotanella: Little Artemisia (known as Abrotanus by ancient herbalists)
caespitosa: From the Latin caespes ‘tuft’ or ‘sod of turf’, meaning growing in tufts or patches

WHERE TO BUY
Not commercially available.

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

MORE INFORMATION
https://www.nzpcn.org.nz/flora/species/abrotanella-caespitosa/

Androstoma empetrifolium

Te Moehau, March. Photographer: John Smith-Dodsworth

Auckland Islands. Photographer: Jane Gosden

SYNONYMS
Cyathodes empetrifolia (Hook.f.) Hook.f., Styphelia taxifolia Sleumer, Styphelia androstoma F.Muell. (nom. illegit.), Styphelia hookeri F.Muell. (nom. illegit.)

FAMILY
Ericaceae

AUTHORITY
Androstoma empetrifolium Hook.f.

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
Yes

ENDEMIC GENUS
No

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Trees & Shrubs - Dicotyledons

NVS CODE
ANDEMP

CHROMOSOME NUMBER
2n = 24

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

BRIEF DESCRIPTION
Low-growing sprawling reddish shrub. Leaves spreading, small, curved, appearing blunt, reddish or dark green above (somewhat pubescent), undersides 3-veined (veins parallel), white, pubescent. Flower small, white, tubular, single or in small clusters. Fruit fleshy, white, pink or red, ovoid

DISTRIBUTION
Endemic. North, South, Stewart, Chatham, Auckland and Campbell islands, from Te Moehau and Mt Pirongia south.

HABITAT
Coastal to alpine (montane to alpine in northern part of range otherwise extending to sea level). A species of open shrubland, tussock grassland, peat bogs and other poorly drained sites, as well as mixed alpine and subalpine herbfield. It is also frequently found on ridgelines on poorly draining, skeletal soils and on rock outcrops.

FEATURES
Prostrate, semi-prostrate (decumbent) sometimes trailing, widely spreading woody shrubs up to 1.0 × 0.2 m. Stems spreading, brown, grey-brown or red-brown; branchlets red-brown, yellow-brown or brown, ribbed, pubescent. Leaves dark green, bronze-green, maroon adaxially, abaxially pubescent, alternate, evenly spaced, ± spreading, erect or reflexed, shedding along branchlets, and absent on main stems; petiolate, petiole erect, ± appressed, 0.5-0.9 mm long, glabrous; lamina linear, 2.3-4.8 × 0.6-1.1 mm, coriaceous, convex (rarely flat); apex obtuse surmounted by a minute callus; margin recurved, glabrous or ciliate; adaxially ± glossy, glabrous or finely pubescent; abaxially pubescent with hairs either confined to interveinal grooves or pubescent overall, striate, veins 3 parallel, conspicuous, abaxially strongly ribbed. Plants hermaphrodite. Inflorescences terminal, 1-3-flowered,terminating in a rudimentary bud. Flowers pendulous, subtended by a single bract and 2 prominently keeled bracteoles, not pedicellate above bracteoles so appearing spicate; pedicel 0.4-1 mm long; bract, bracteoles, and sepals ovate or oblong, obtuse, glabrous or rarely puberulent outside; bract 0.5-0.9 × 0.5 mm, margin ciliolate; bracteoles non-imbricate, uniform in size, 0.8-1.5 × 0.7-1 mm, conspicuously striate particularly when dry, margin ciliate; sepals 1.3-1.9 × 0.8-1.1 mm, margin ciliate, bearing stomata on the adaxial surface (with a few present within hair-bearing clefts on the abaxial surface). Corolla tube equal or shorter than calyx, thin, campanulate, 1.1-1.6 mm long, inner portion of tube glabrous; lobes spreading, acute, equalling the tube, 1.0-1.5 mm long, sparsely puberulent to puberulent towards apices. Anthers emarginate, 0.3-0.5 mm long, apically attached by a short thin filament inserted just below sinus of corolla tube; the filaments exserted, 0.3-0.5 mm long. Ovary 3-4-locular, spherical to ovoid, glabrous, 0.5-1.0 × 0.5-0.8 mm wide; style straight, glabrous, 0.5-0.8 mm long; stigma 0.1 mm long exserted. Nectary annular deeply lobed, occasionally comprised of distinct scales, these 0.2-0.4 mm tall, glabrous. Fruit red (occasionally white or pink), 2.0-3.0 × 1.5-2 mm, glabrous. Endocarp 1.6-2.3 × 1.6-2.1 mm, brown, orange to ornage-brown, broadly elliptic to ovoid, obscurely 3-angled, often longitudinally ridged, somewhat granular.

SIMILAR TAXA
None.

FLOWERING
November - January

FRUITING
January - August

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

PROPAGATION TECHNIQUE
Difficult. Should not be removed from the wild

WHERE TO BUY
Not commercially available.

TAXONOMIC NOTES
Until recently *Androstoma* had been treated as a monotypic and endemic genus (Hooker 1844; Weiller 1996). In 2005 an further Australian (Tasmania) endemic species that had been variously referred to *Pentachondra*, *Trochocarpa*, *Styphelia* and *Leucopogon*, was transferred to *Androstoma* as *A. verticillata* (Hook.f.) C.J.Quinn (Quinn et al. 2005). Androstoma empetrifolium was treated as *Cyathodes empetrifolia* (Hook.f.) Hook.f. by Allan (1961)

ATTRIBUTION
Fact Sheet prepared for the NZPCN by P.J. de Lange (19 November 2014). Description based on Weiller (1996), Quinn et al (2005), Webb & Simpson (2001) and observations made from fresh and dried specimens

REFERENCES AND FURTHER READING

Allan, H.H. 1961: Flora of New Zealand. Vol. I. Wellington, Government Printer.
Hooker, J.D. 1844: *The Botany of the Antarctic Voyage of H.M. Discovery Ships Erebus and Terror in the Years 1839–1843, under the command of Captain Sir James Clark Ross.*London, Reeve, Brothers. 208 p.
Quinn, C. J.; Brown, E. A.; Heslewood, M. M.; Crayn, D. M. 2005: Generic concepts in Styphelieae (Ericaceae): the *Cyathodes* group. *Australian Systematic Botany 18*: 439-454
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.
Webb, C.J.; Simpson, M.J.A. 2001: Seeds of New Zealand Gymnosperms and Dicotyledons. Christchurch, Manuka Press.
Weiller, C.M. 1996: Reinstatement of the genus *Androstoma* Hook.f. (Epacridaceae). *New Zealand Journal of Botany 34*: 179-185.

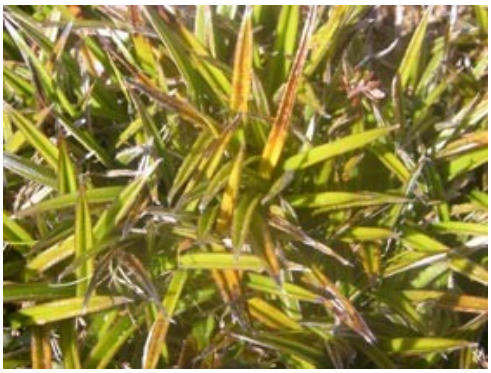
CITATION

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

MORE INFORMATION

https://www.nzpcn.org.nz/flora/species/androstoma-empetrifolium/

Astelia linearis var. linearis



Enderby Island, Dec 2006. Photographer: Clayson Howell, Department of Conservation (Crown copyright)

SYNONYMS
None

FAMILY
Asteliaceae

AUTHORITY
Astelia linearis Hook.f. var. linearis

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
Yes

ENDEMIC GENUS
No

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Herbs - Monocots

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

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

ETYMOLOGY
astelia: Stemless
linearis: Linear (leaves)

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

MORE INFORMATION
https://www.nzpcn.org.nz/flora/species/astelia-linearis-var-linearis/

Carex appressa

Carex appressa. Photographer: Jeremy Rolfe

Enderby Island. Photographer: John Barkla

COMMON NAME
Southern cutty grass, tussock sedge

SYNONYMS
Carex appressa R.Br. var. appressa; Carex paniculata L. var. appressa (R.Br.) Cheeseman

FAMILY
Cyperaceae

AUTHORITY
Carex appressa R.Br.

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
No

ENDEMIC GENUS
No

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Sedges

NVS CODE
CARAPP

CHROMOSOME NUMBER
2n = 60-62

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

DISTRIBUTION
Indigenous. North Island (Cook Strait region only), South Island (scattered, more common in the southern regions), Stewart, Chatham, Antipodes, Auckland and Campbell Islands. Also New Caledonia, Australia and New Guinea. Naturalised around Auckland City.

HABITAT
Mostly coastal, extending to montane in the subantarctic islands. Preferring open situations, usually on the margins of peat bogs or peaty, slow-flowing streams.

FEATURES

Stout, rhizomatous sedge, forming robust, harsh and rigid, dark green tussocks. Culms 0.2–1.4 m tall, 3.0–6.5 mm wide, acutely trigonous, angles prominently scabrid above; basal sheaths shining, light to dark grey-brown, rarely purple-brown. Leaves usually > culms, 3–7 mm wide, channelled, stiffly erect, immature leaves with pungent apices, margins and keel very scabrid. Inflorescence an erect, elongated, mostly compact, stiff panicle 60–250 x 10–30 mm, usually interrupted below, branchlets us. < 35 mm long, more crowded above, appressed to inflorescence axis. Spikes 5–6 mm long, red-brown, ovoid, androgynous, male flowers terminal. Glumes slightly < utricles, ovate, acute, often furnished with a short scabrid mucro, brown with lighter brown midrib. Utricles c.2.5–3.5 x 1.5 mm, plano-convex, conspicuously many-nerved, dark brown; tapered to a beak 1.0–1.5 mm long, margins distinctly toothed, orifice bifid; sharply constricted to a narrow stipe 2–4 mm. long. Stigmas 2. Nut c.1.5 mm. long, plano-convex, oblong-obovoid, light or dark brown.

SIMILAR TAXA

Carex appressa most closely resembles C. virgata Sol. ex Boott, especially as the inflorescence of both species is a stiffly erect contracted panicle, further, both species have similar distinctly nerved utricles. However, C. virgata has more slender culms, narrower leaves and paler brown, less dense-flowered panicles. In C. appressa the utricles are > 2.5 mm long while those of C. virgata are < 2.5 mm long.

FLOWERING

September - December

FRUITING

December - June

LIFE CYCLE

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

PROPAGATION TECHNIQUE

Easily grown from fresh seed and by the division of whole plants. Will tolerate most conditions but does best in full sun in a permanently damp soil. Rather variable and some horticultural selection is warranted. The typical form with stiffly erect, densely compacted inflorescences is perhaps the most attractive.

ETYMOLOGY

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

ATTRIBUTION

Fact Sheet prepared by P.J. de Lange (110 August 2006). Description adapted from Moore and Edgar (1970)

REFERENCES AND FURTHER READING

Moore, L.B.; Edgar, E. 1970: Flora of New Zealand. Vol. II. Government Printer, Wellington. On the Chatham Islands C. appressa appears to intergrade with, or hybridise with C. virgata.
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 appressa Fact Sheet (content continuously updated). New Zealand Plant Conservation Network. https://www.nzpcn.org.nz/flora/species/carex-appressa/ (Date website was queried)

MORE INFORMATION

https://www.nzpcn.org.nz/flora/species/carex-appressa/

Carpha alpina

Lammermoor Range 1000m. Photographer: Rowan Hindmarsh-Walls

Whenuakura, January. Photographer: John Smith-Dodsworth

COMMON NAME
Carpha

SYNONYMS
None

FAMILY
Cyperaceae

AUTHORITY
Carpha alpina R.Br.

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
No

ENDEMIC GENUS
No

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Sedges

NVS CODE
CARALP

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

DISTRIBUTION
Indigenous. Australia and New Zealand. In New Zealand known from the North, South, Stewart and Auckland Islands. In the North Island it is known locally from te Moehau south becoming more common along the main axial ranges and on the volcanic plateau.

HABITAT
Coastal to alpine in bogs, mires and other moderately open shrublands overlying poorly drained soils and peat. in the northern part of its range strictly montane to alpine, descending to the coast on the west coast and southern portion of the South Island, Stewart and Auckland Islands.

FEATURES
Tufted perennial sedge. Culms 30-750 x 0.5-1.5 mm, grooved , flaccid or rigid (often with curled or curved apices). Leaves numerous, grey-green or red-green, 50-300 x 0.5-2.0 mm, usually culms, rigid, lamina narrow-linear, flat or concavo-convex, apex obtuse; sheath broad, brown, shining; lower portion of lamina and mouth of sheath minutely serrulate. Inflorescence a terminal corymb, occasionally condensed to form a compact head, or comprising discrete spikelets in 4-6 loose stalked clusters; bracts subtending inflorescence 1-2, foliaceous; bracts subtending spikelets plumose. Spikelets 8-12 mm long, pale and lustrous, 1-flowered. Glumes usually 5, lanceolate, more or less obtuse, stiffly membranous, keeled the 2 lower shorter, the next larger pair subtending the flower, the fifth glume setaceous. Hypogynous bristles 6, plumose with silky hairs almost to the apex, then scabrid, > glumes when mature. Nut 2.5-3.0 mm long, stipitate, pale to dark brown, surmounted by the dried and rigid, long, narrow, smooth or minutely hairy style-base.

SIMILAR TAXA
Carpha has a superficial resemblance to grasses of the genus Rytidosperma Steud on account of the plumose bracts subtending the spikelets and also the plumose seta that form a perianth around the flower and later the nut. From Rytidosperma it is easily distinguished by the rigidly flat, narrow-linear grey-green or red-green leaves, usually corymbose inflorescence, flowers which lack lemma, palea, and by the distinctive, stipitate nut. Carpha cannot be confused however with any other indigenous or naturalised cyperaceous genus.

FLOWERING
November - January

FRUITING
February - May

LIFE CYCLE
Pappate nuts are dispersed by wind (Thorsen et al., 2009).

PROPAGATION TECHNIQUE
Although rather slow growing this species is easily cultivated in a pot partially submerged in water. In the wild it is variable with tall and short forms which seem to retain these stature differences in cultivation. From a horticultural perspective some selection from these may be useful. Like many cyperaceous species, Carpha alpina resents root disturbance and can be fickle from seed.

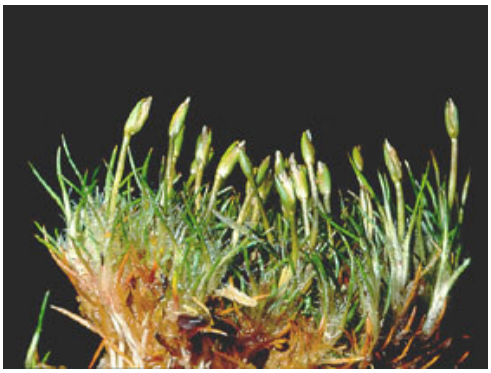
ETYMOLOGY
carpha: Straw
alpina: Alpine

ATTRIBUTION
Description adapted from Moore and Edgar (1970)

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

MORE INFORMATION
https://www.nzpcn.org.nz/flora/species/carpha-alpina/

Centrolepis ciliata



Key Summit. December. Photographer: John Smith-Dodsworth

Lammermoor Range 1000m. Photographer: Rowan Hindmarsh-Walls

COMMON NAME
Centrolepis

SYNONYMS
Gaimardia ciliata Hook.f.; Alepyrum ciliatum (Hook.f.) Hieron.; Centrolepis viridis Kirk; Centrolepis viridis Kirk var. ligulata (Kirk) Cheeseman; Pseudalepyrum ciliatum (Hook.f.) Dandy; Pseudalepyrum ciliatum (Hook.f.) Dandy var. ligulatum (Kirk) Dandy

FAMILY
Restionaceae

AUTHORITY
Centrolepis ciliata (Hook.f.) Druce

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
Yes

ENDEMIC GENUS
No

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Herbs - Monocots

NVS CODE
CENCIL

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

DISTRIBUTION
Indigenous. New Zealand: North (from Central Volcanic Plateau and adjacent main axial ranges south), South, Stewart, Auckland and Campbell Islands. Also Tasmania

HABITAT
In upper montane, subalpine to alpine bogs through main islands but descending to sea level in the pakihi of Westland, in Southland, Stewart Island and in the subantarctic Islands

FEATURES
Diminutive, moss like herbs forming very broad, dark red-green to red-brown, broad, raised cushions up to 300 mm wide and up to 80 mm tall. Roots rather thick, fleshy, white or grey, up to 0.5 mm diameter. Stems very closely packed. Leaves 5–25 mm long, distichous, closely imbricate, setaceous, lamina channelled or terete, tip minutely acicular; sheath with ciliate margins, often produced at the tip into a ligule. Flowering stems > leaves. Glume-like bracts 2, ± equal, minutely papillate, tips inrolled, apparently opposite but the lowermost encloses a short peduncle bearing the upper glume and its flowers. Pseudanthia 1–2 in the lower bract, 1 rarely 2 in the upper, each subtended by a hyaline scale. Male 1 or 0 in each pseudanthium. Female 2 (rarely 1) in each pseudanthium; stigmas bright red, not connate at the base. Seed slightly < 1 mm long, oblong-elliptical, pale yellow, apiculate at each end, one tip very dark

SIMILAR TAXA
Recognised by the moss-like, compact, dark red-green to brown-green, broad, raised cushions, and leaves which have finely ciliate sheaths rather than ciliate sheaths and leaves.

FLOWERING
November – January

FLOWER COLOURS
Red/Pink, Yellow

FRUITING
January - March

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

PROPAGATION TECHNIQUE
Difficult. Should not be removed from the wild.

ETYMOLOGY
centrolepis: Pointed scale
ciliata: From the Latin cilia 'eyelash', meaning fringed with hairs

WHERE TO BUY
Not commercially available

ATTRIBUTION
Fact Sheet Prepared for NZPCN by: P.J. de Lange 14 August 2006. Description adapted from Moore & Edgar (1970)

REFERENCES AND FURTHER READING
Moore, L.B.; Edgar, E. 1970: Flora of New Zealand. Vol. II. Government Printer, Wellington.
Thorsen, M. J.; Dickinson, K. J. M.; Seddon, P. J. 2009. Seed dispersal systems in the New Zealand flora. Perspectives in Plant Ecology, Evolution and Systematics 11: 285-309

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

MORE INFORMATION
https://www.nzpcn.org.nz/flora/species/centrolepis-ciliata/

Eleocharis gracilis

Coromandel, January. Photographer: John Smith-Dodsworth

Eleocharis gracilis, Waikuku Beach. Photographer: Gillian Crowcroft

COMMON NAME
Slender spike sedge

SYNONYMS
Eleocharis gracilis R.Br. var. gracillima Hook.f.; Eleocharis gracilis R.Br. var. radicans Hook.f.; Eleocharis cunninghamii Boeck.; Eleocharis gracillima (Hook.f.) Hook.f.; Eleocharis hookeri Boeck.

FAMILY
Cyperaceae

AUTHORITY
Eleocharis gracilis R.Br.

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
No

ENDEMIC GENUS
No

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Sedges

NVS CODE
ELEGRA

CHROMOSOME NUMBER
2n = 20

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

DISTRIBUTION
Indigenous. In New Zealand present in the North, South, Chatham and Stewart Islands. Present in Australia and Norfolk Island.

HABITAT
Coastal to subalpine. A species of usually open situations on permanently damp ground such as lake, pond, tarn, stream and river sides, and wetlands.

FEATURES
Terrestrial or semi-aquatic sedge forming green to red-green tufts. Rhizomes widely creeping, 1-3 mm diameter, loosely ensheathed at each nodes by conspicuous dark maroon, obtuse bracts with broad membranous margins. Culms densely tufted to widely spaced (or set close together in a linear series), 20.0-400.0 x 0.5 mm, erect or curved; sheaths membranous, with maroon to purple markings and an oblique orifice. Spikelets conspicuous, 3-8 x 1-4 mm, 5-20-flowered, ovoid to almost lanceolate, subacute. Glumes oblong, obtuse, 1-nerved, membranous, margins often very broad. Hypogynous bristles 4-8, usually > nut. Stamens 3. Style 3-fid. Nut slightly < 1.5 mm long, slightly , 1 mm diameter, trigonous, obovoid, light to dark brown, smooth, surmounted by the pyramidal, persistent style-base.

SIMILAR TAXA
Most likely to be confused with Eleocharis pusilla R.Br. from which it differs by widely creeping rather than ascending rhizome; by the spikelets > 3 mm long (rather than 2.5-3 mm long); hypogynous bristles 4-8 (rather than absent or occasionally 2-3); and by the smooth nut (rather than nut with the surface covered in prominent vertical ribs and fine transverse bars). Eleocharis gracilis and E. pusilla may at times be sympatric.

FLOWERING
August - January

FRUITING
October - May

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

PROPAGATION TECHNIQUE
Easily grown from fresh seed and rooted pieces. Prefers a permanently damp situation in full sun.

ETYMOLOGY
eleocharis: Charm of the swamp
gracilis: Slender

ATTRIBUTION
Description adapted from Moore and Edgar (1970)

REFERENCES AND FURTHER READING
Moore, L.B.; Edgar, E. 1970: Flora of New Zealand. Vol. II. Government Printer, Wellington.
Thorsen, M. J.; Dickinson, K. J. M.; Seddon, P. J. 2009. Seed dispersal systems in the New Zealand flora. Perspectives in Plant Ecology, Evolution and Systematics 11: 285-309

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

Gentianella grisebachii

Ruahine range, January. Photographer: John Smith-Dodsworth

Lammermoor Range 1000. Photographer: Rowan Hindmarsh-Walls

COMMON NAME
Forest Gentian, common Gentian

SYNONYMS
Gentiana grisebachii Hook.f., Gentiana montana f. grisebachii (Hook.f.) Kirk, Gentiana novae-zelandiae J.B.Armstr., Gentiana montana f. novaezelandiae (J.B.Armstr.) Kirk, Gentiana montana var. novae-zelandiae (J.B.Armstr.) Cheeseman, Gentiana matthewsii Petrie, Gentiana grisebachii var. matthewsii (Petrie) Cheeseman, Chionogentias grisebachii (Hook.f.) L.G.Adams, C. matthewsii (Petrie) L.G.Adams

FAMILY
Gentianaceae

AUTHORITY
Gentianella grisebachii (Hook.f.) T.N.Ho et S.W.Liu

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
Yes

ENDEMIC GENUS
No

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Herbs - Dicotyledons other than Composites

NVS CODE
GENGRI

CHROMOSOME NUMBER
2n = 36

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

DISTRIBUTION
Endemic. New Zealand: North (from Mt Pirongia and the Raukumara Ranges south), South and Stewart Islands.

HABITAT
Usually montane to alpine but also lowland in southern part of range. Mainly present in moderately acid to acidic bogs, swamp forest, cloud forest, and poorly drained subalpine scrub, tussock grassland and rough pasture.

FEATURES
Plants monocarpic, biennial, height in flower 40–290 mm. Caudex unbranched, 7–15 mm long. Root 1.4–4.0 mm diameter at stem base. Flowering stems terminal and lateral or lateral only, 2–8 per plant, largest flowering stem 0.6–2.7 mm diameter at base, stem green, tinted crimson-orange, or purple-black, lateral flowering stems erect or decumbent, flowering stem leaves 3–6 pairs per stem, lowest pedicels from near base of flowering stem to near apex of flowering stem. Rosette of leaves absent from flowering plants, leaves narrowly elliptic or elliptic or ovate, 9.1–65.0 × 2.3–16.0 mm wide, green or tinted purple-black, flat or V-shaped, not recurved; apex acute or rounded; petiole distinct, 11–18 mm long, 0.7–3.6 mm wide at leaf base. Flowering stem leaves elliptic, ovate to narrowly ovate. Flowers 3–49 per plant, 6.7–20.0 mm long. Pedicels 1 per leaf axil, 10–80 mm long (elongating after flowering to 17–85 mm), 0.5–1.4 mm diameter. Calyx 5.5–11.6 mm long, green, tinted purple-black at the apices, hairs at calyx–corolla fusion line present; lobes 4.2–7.8 mm long, 0.9–2.6 mm wide at base, plane, apices narrowly acute, margins smooth, sinus hairs absent or sparse. Corolla 6.4–16 mm long, white, occasionally with purple-grey tinting on the corolla lobes, veins uncoloured, purple or purple-grey; tube 1.5–3.8 mm long; lobes 4.9–12.5 × 2.1–8.6 mm wide, hairs below sinus absent or present; nectary 0.4–1.2 mm from corolla base. Filaments 3.6–8.6 mm long from corolla base, 0.3–1.1 mm wide. Anthers 0.5–3.4 mm long, anther wall blue-black, rarely pink, mouth yellow, pale orange or orange-red, extrorse, occasionally horizontal at anthesis; pollen yellow or pale orange. Stigma colourless. Ovules 23–72 per ovary. Capsule 7.2–20.0 mm long.

SIMILAR TAXA
Distinguished by its usually small, slender stems and preference for moderately acidic to acidic bogs and other poorly drained, sparsely vegetated habitats. Although highly variable it is easily separated from other Gentianella its large number of gracile dark purple or bronze scapes, the pedicels which greatly elongate after flowering; by its narrowly triangular calyx lobes; and also (for most of its range) by its small flowers that scarcely open.

FLOWERING
January – May

FLOWER COLOURS
Violet/Purple, White

FRUITING
February - August

LIFE CYCLE
Seeds dispersed by ballistic projection, wind and water (Thorsen et al., 2009)

PROPAGATION TECHNIQUE
Difficult. Should not be removed from the wild.

ETYMOLOGY
gentianella: Little Gentiana (named after Gentius, 6th century king of Illyria, who found the roots of the yellow gentian to have a healing effect on his malaria-stricken troops)
grisebachii: After Grisebach

WHERE TO BUY
Not commercially available.

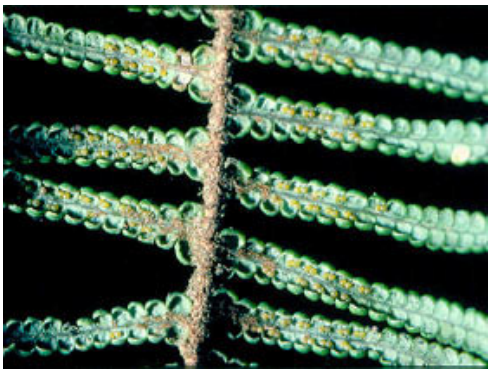
ATTRIBUTION
Description modified from Glenny (2004)

REFERENCES AND FURTHER READING
Glenny, D. 2004: A revision of the genus Gentianella in New Zealand. New Zealand Journal of Botany 42: 361-530.
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/gentianella-grisebachii/

Gleichenia dicarpa

Kennedy Bay, September. Photographer: John Smith-Dodsworth



At Kennedy Bay, September. Photographer: John Smith-Dodsworth

COMMON NAME
Tangle fern, swamp umbrella fern

SYNONYMS
Gleichenia circinnata Sw.; Gleichenia dicarpa var. hecistophylla (A.Cunn.) G.Schneid.; Gleichenia semi-vestita var. hecistophylla (A.Cunn.) Hook.f.; Gleicheniastrum hecistophyllum var. majus (T.Moore) Nakai; Gleichenia circinnata var. hecistophylla (A.Cunn.) Hook.f.; Gleichenia dicarpa var. major T.Moore; Gleicheniastrum hecistophyllum (A.Cunn.) Nakai; Mertensia dicarpa (R.Br.) Poir.; Platyzoma dicarpum (R.Br.) Desv.; Calymella dicarpa (R.Br.) C.Presl; Calymella major Nakai; Gleichenia hecistophylla A.Cunn.

FAMILY
Gleicheniaceae

AUTHORITY
Gleichenia dicarpa R. Br.

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
Yes

ENDEMIC GENUS
No

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Ferns

NVS CODE
GLEDIC

CHROMOSOME NUMBER
2n = 40

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

DISTRIBUTION
Indigenous. New Zealand. North, South, Stewart and Chathams Islands. Also Australia, New Caledonia, Philippines, Borneo and Malaysia

HABITAT
Coastal to subalpine in poorly drainning soils, clay pans and pakihi and peat bogs. In lowland peat bogs often forming dense, almost impenetrable masses hence the common name “tangle fern”.

FEATURES
Rhizome 1.5-3.0 mm diameter, at first bearing brown lanceolate ciliate scales. Fronds of 1-4 tiers of branches, 0.1-2.0 m or more long; lower tiers often branching, usually more than 150 mm wide. Stipes scattered along rhizomes, 0.6-0.95 m long, often bearing brown lanceolate ciliate scales; rachis bearing weak brown to white often matted stellate hairs and ciliate scales.Pinnules glabrous above or with scattered hairs along costa, with sparse or dense whitish to ferruginous scales along costa below; ultimate segments 0.8-1.5 mm long, 0.8-2.0 mm wide, more or less round, obtuse, flat or slightly convex above, pouched below; undersurface white, rarely green. Sori of 2 sporangia only. Description adapted from Chinnock & Bell (1998).

SIMILAR TAXA
Often confused with Gleichenia microphylla which is a taller plant, with ultimate segments flattened, and distinctly triangular, which are abaxially green (never white), and which bear 2-4 sporangia. Gleichenia alpina is very similar to G. dicarpa from which it differs by its consistently smaller fronds (rarely > 60 mm wide, and rounded rather than lanceolate scales. Recently it has been shown that Gleichenia alpina is present in New Zealand, though its exact distribution is still unclear (Perrie et al. 2007; Perrie et al. 2012). Gleichenia inclusisora differs from G. dicarpa (with which it often grows) by the sori which are embedded up to three-quarters of their depth into the undersides of the fronds, and also by the glossy rather than mostly dull upper frond surface.

FLOWERING
N.A.

FLOWER COLOURS
No flowers

FRUITING
N.A.

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

PROPAGATION TECHNIQUE
Fickle. Probably best left alone. Transplants have sometimes been successfully grown in shaded conditions with plants planted in an acid, poorly drained soil. But results vary and plants tend to resent any root disturbance

ETYMOLOGY
gleichenia: After the German naturalist and plant physiologist Wilhelm Friedrich (Baron) von Gleichen (1717-1783)
dicarpa: Two seeded; from the greek di and karpos; paired spore clusters

ATTRIBUTION
Fact sheet prepared for NZPCN by P.J. de Lange 15 March 2011. Description adapted from Chinnock & Bell (1998).

REFERENCES AND FURTHER READING
Chinnock, R.J.; Bell, G.H. 1998: Gleicheniaceae. Flora of Australia 48: 148-162.
Perrie, L.R.; Shephard, L.D.; Brownsey, P.J. 2012: *Gleichenia inclusisora*, a new and uncommon tangle fern from New Zealand. *New Zealand Journal of Botany 50*: 401-410.
Thorsen, M. J.; Dickinson, K. J. M.; Seddon, P. J. 2009. Seed dispersal systems in the New Zealand flora. Perspectives in Plant Ecology, Evolution and Systematics 11: 285-309

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

MORE INFORMATION
https://www.nzpcn.org.nz/flora/species/gleichenia-dicarpa/

Leptospermum scoparium var. scoparium

Tararua Forest Park. Dec 2007. Photographer: Jeremy Rolfe

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

COMMON NAME
Manuka, kahikatoa

SYNONYMS
None - a myriad of varieties have been proposed none of which has been strictly synonymised within L. scoparium. Allan (1961) discusses some of these, and accepted one (var. incanum). A modern taxonomic assessment of Leptospermum scoparium is urgently needed.

FAMILY
Myrtaceae

AUTHORITY
Leptospermum scoparium J.R.Forst. et G.Forst. var. scoparium

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
No

ENDEMIC GENUS
No

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Trees & Shrubs - Dicotyledons

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
Common small prickly shrub or small tree with flaky bark and more or less hairy new growth and bearing masses of oval pointed leaves and white or pinkish red-centred flowers. Leaves hard, 5-20mm long by 1-8mm wide, prickly to grasp. Flowers to 25mm wide. Fruit a dry 5-7mm wide capsule.

DISTRIBUTION
Indigenous to New Zealand and Australia. Most Australian forms of L. scoparium do not match the range seen in New Zealand. However, plants from Tasmania are very similar to, if not identical with some South Island forms, differing in having a lignotuber, wider leaf bases, and longer, more pungent leaf apices. Leptospermum scoparium was also collected once from Rarotonga by Thomas Cheeseman in the 1800s. It has not been found there since. It's biostatus on that island is unclear.

HABITAT
Abundant from coastal situations to low alpine habitats.

FEATURES
Decumbent shrub, subshrub, shrub, or small tree up to 5 m in height and in decumbent forms 2-4 m across. Bark light grey to charcoal grey, peeling in long papery flakes, these curling with age. Wood red. Branches numerous erect, spreading or decumbent, arising from base, sometimes sprouting adventitious roots and/or layering on contact with soil. Young branches, young leaves and flower buds densely to sparingly clad in long silky, white hairs. Leaves leathery, pale to dark green, glabrescent to glabrous, linear-filiform, narrowly lanceolate, lanceolate, oblanceolate, to elliptic or obovate (5-)10-15(-20) x 1-2-5(-8) mm, invariably apex drawn out into a long stiff, pungent point, midrib usaully distinct sometimes obscure, leaf margin finely crenate, veins simple, scarcely branched. Flowers solitary in leaf axils, (8-)10-20(-25) mm diam. Receptacle dark red, crimson or pink. Petals white, sometimes flushed pink or dark red. Stamens numerous.

SIMILAR TAXA
With the exception of L. scoparium var. incanum a broad circumscription of the the New Zealand forms of manuka (L. scoparium) has been adopted. In this sense, manuka could only be confused with kanuka (Kunzea spp.) and Great Barrier Island kanuka (Kunzea sinclairii), fromwhich it can be easily distinguished by the hard, persistent, circular, nut-like fruits, with non persistent sepals, sharp-tipped minutely denticulate leaves, and flowers which appear to be solitary.

FLOWERING
Throughout the year

FLOWER COLOURS
Red/Pink, White

FRUITING
The capsules are long persistent so invariably mature plants possess at least some capsules.

PROPAGATION TECHNIQUE
Very easy from fresh seed. Seed must be sown fresh, even if left for a few weeks before sowing viability can drop, especially if seed is allowed to dry out. Difficult from cuttings.

THREATS
Although widespread and common, some stands are at risk from clearance for farmland or through felling for firewood. The recent (2017) arrival of myrtle rust (*Austropuccinia psidii*) may pose a more serious threat to *Leptospermum* (see below). See myrtlerust.org.nz for more information about this invasive fungus.

ETYMOLOGY
leptospermum: Slender seed
scoparium: Like a broom

WHERE TO BUY
Commonly cultivated. However many garden forms are horticultural selections based on crosses between *L. scoparium* var. *incanum* and white or red-flowered *L. scoparium* var. *scoparium*. Some seem to represent natural variations, others may stem for deliberate crosses with Australian forms of *L. scoparium* and allied species. Recently a number of Australian *Leptospermum* have been introduced into New Zealand, and these have been deliberately crossed with manuka.

MYRTLE RUST THREAT
Myrtle rust (*Austropuccinia psidii*) was first detected in New Zealand in 2017. As there is as yet no known effective treatment for that rust. Overseas indications are that this rust is having a serious impact on Myrtaceae worldwide, including causing such severe declines in some that extinction of some species and genera seems inevitable. As such the New Zealand Threat Listing Panel elected to list all indigenous Myrtaceae using the 'Precautionary Principle' as 'Threatened' (de Lange et al. 2018). Hopefully this assessment will be proved wrong. As of 2018 there have been very few occurrences of myrtle rust on *Leptospermum*. However, the rust is still in its early establishment phase. Australian experience suggests it may take 10 or more years to truly establish which New Zealand Myrtaceae will be most affected.

ATTRIBUTION
Fact Sheet prepared for NZPCN by P.J. de Lange 1 February 2004. Description by P.J. de Lange.

REFERENCES AND FURTHER READING

de Lange, P.J.; Rolfe, J.R.; Barkla, J.W.; Courtney, S.P.; Champion, P.D.; Perrie, L.R.; Beadel, S.M.; Ford, K.A.; Breitwieser, I.; Schönberger, I.; Hindmarsh-Walls, R.; Heenan, P.B.; Ladley, K. 2018: Conservation status of New Zealand indigenous vascular plants. 2017. *New Zealand Threat Classification Series 22*: 1–82.
Gardner, R. 2002. Notes towards an excursion Flora .Manuka *Leptospermum scoparium* myrtaceae. Auckland Botanical Society Journal, 57: 147-149

CITATION

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

MORE INFORMATION

https://www.nzpcn.org.nz/flora/species/leptospermum-scoparium-var-scoparium/

Machaerina tenax

Machaerina tenax culms. Photographer: John Smith-Dodsworth

Machaerina tenax flowering inflorescence. Photographer: John Smith-Dodsworth

SYNONYMS
Lampocarya tenax Hook.f.; Cladium tenax (Hook.f.) Druce; Baumea tenax (Hook.f.) Blake

FAMILY
Cyperaceae

AUTHORITY
Machaerina tenax (Hook.f.) Koyama

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
Yes

ENDEMIC GENUS
No

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Sedges

NVS CODE
MACTEN

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

BRIEF DESCRIPTION
Grass-green, reed-like tufted sedge. Culms narrow, terete, internally septate culms. Inflorescences dark brown to black-brown,spike-like with narrow and pointed apices; inflorescence branches tapered, more or less widely spaced, spikelets clustered. Nut smooth, yellow when mature.

DISTRIBUTION
Endemic. New Zealand: North, South, Stewart and Chatham Islands (but scarce in Northland and much of the eastern South Island).

HABITAT
Coastal to subalpine. Usually on peat in bogs, around tarns and slow flowing peaty streams. However, Machaerina tenax has also been found growing in poorly draining pasture and in rough pasture land in hill country, at the back of estuarine swamps (where it may grow with M. juncea and M. complanata) and under willow in willow car.

FEATURES
Stout, densely tufted, light-green (grass-green) perennial. Rhizome 2–3 mm diameter, with culms closely and evenly spaced along it. Culms, 0.15–1.65 m tall, 0.5–1.5 mm wide, slender, terete, rigidly pliant and wiry. Leaves reduced to basal, reddish pink, sheathing bracts; the uppermost often furnished with a terete lamina like the culm. Inflorescence 50–250 mm long, very narrow, spike-like; branchlets remote, slender, erect from sheathing mucronate bracts. Spikelets 6–8 mm long, ± distant, not fascicled, light grey-brown or reddish, distinct at the tips of the branchlets, 1-flowered. Glumes usually 3, 2 lower glumes ± membranous, lanceolate, shortly acuminate, the uppermost glume longer, spreading with maturation of the fruit. Nut, including beak, c.2.5 × 1.5 mm, yellow, ovoid (trigonous when immature), narrowed below to a short, dark brown stalk, narrowed above to a dark brown, pyramidal beak, c.1 mm long, rounded at the tip.

SIMILAR TAXA
Machaerina tenax is recognised by the grass-green, narrow, terete, internally septate culms; dark brown to black-brown, spike-like inflorescences which narrow toward and are at pointed at the apex; by the more or less approximate spikelet branchlets; and by the yellow, smooth-surfaced nut.

FLOWERING
December - February

FRUITING
Fruits present throughout the year

PROPAGATION TECHNIQUE
Difficult. Can be grown from fresh seed but slow to establish. Resents root disturbance. Plants seem to flourish best if established first in untreated pine saw dust. Machaerina tenax is an attractive species that does well when planted in seepages in full sun or around ponds. It prefers a moderately acidic substrate.

ETYMOLOGY
tenax: Tough

ATTRIBUTION
Fact sheet prepared for NZPCN by P.J. de Lange (25 March 2012). Description adapted from Moore & Edgar (1970)

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

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

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

Oreobolus pectinatus

Oreobolus. Photographer: John Barkla

Ruahine range, March. Photographer: John Smith-Dodsworth

COMMON NAME
Comb sedge, cushion sedge, flat-leaved comb sedge

SYNONYMS
Oreobolus serrulatus Col.; Oreobolus pumilio var. pectinatus (Hook.f.) C.B.Clarke

FAMILY
Cyperaceae

AUTHORITY
Oreobolus pectinatus Hook.f.

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
Yes

ENDEMIC GENUS
No

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Sedges

NVS CODE
OREPEC

CHROMOSOME NUMBER
2n = c.40

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

DISTRIBUTION
Endemic. North, South, Stewart, Auckland and Campbell Islands.

HABITAT
Coastal to alpine (up to 1500 m a.s.l.). Mostly alpine descending to sea level only in the southern South Island, Stewart, Auckland and Campbell Islands. A common species of cushion bogs and alpine seepages and mires and also favouring poorly drained open ground. Very rarely found growing in damp peaty ground under low subalpine scrub

FEATURES
Perennial sedge forming dense grey-green to green cushions 10-100 mm high. Stems densely packed, much branched at base, leafy. Leaves dark green, green to grey-green, mostly distichous; lamina 0.5-1.0 mm wide, abaxial surface convex, median nerve and two lateral nerves visible at widest part of lamina, adaxial surface channelled, only the median nerve prominent, both surfaces with abundant stomata; sheath 5-7-nerved, not lobed at apex. Spikelets usually solitary; mature peduncle usually > leaves. Glumes usually 3(-4), usually light green with broad, colourless, membranous margins, the outermost longer, leaf-like, the two inner more or less equal, membranous, the occasional fourth glume, smaller. Hypogynous scales < nut, lanceolate, initially colourless, maturing red-brown to almost black. Nut slightly > 1 mm long, < 1 mm diameter, light brown or often dark brown with a triangular, pubescent depression at apex.

SIMILAR TAXA
Distinguished from the other endemic species O. impar Edgar and O. stricta Bergg. by the leaves which are mostly distichous; by the median nerve and 2 lateral nerves visible on the lower surface at the widest part of the leaf; and by the usually light green glumes

FLOWERING
October - December

FRUITING
November - April

PROPAGATION TECHNIQUE
Easily grown from rooted pieces and probably from fresh seed. However, this species is best grown in a cooler climate or kept in a pot within an alpine house. it is very slow growing.

ETYMOLOGY
oreobolus: Mountain clump
pectinatus: Like a comb

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/oreobolus-pectinatus/

Pentachondra pumila

SYNONYMS
Epacris pumila J.R.Forst. et G.Forst

FAMILY
Ericaceae

AUTHORITY
Pentachondra pumila (J.R.Forst. et G.Forst.) R.Br.

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
Yes

ENDEMIC GENUS
No

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Trees & Shrubs - Dicotyledons

NVS CODE
PENPUM

CHROMOSOME NUMBER
2n = 52

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

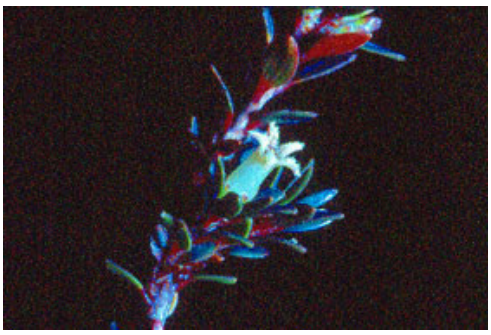
BRIEF DESCRIPTION
Very low growing patches to 0.5m wide with many very small hard blue-green leaves that have a finely hairy edge (lens needed) and red fruit inhabiting upland areas. New growth reddish. Leaves 3-5mm long by 1-2mm wide, blunt tipped. Flowers white, tubular.

FLOWER COLOURS
White

ETYMOLOGY
pentachondra: Five lobes
pumila: Small

MORE INFORMATION
https://www.nzpcn.org.nz/flora/species/pentachondra-pumila/

Pentachondra pumila. Photographer: Jeremy Rolfe



Mt Te Moehau, December. Photographer: John Smith-Dodsworth

Schoenus tendo

Whitianga, February. Photographer: John Smith-Dodsworth

Oratia Valley, Waitakere Range. Jul 2007. Photographer: Jeremy Rolfe

COMMON NAME
Kauri sedge, kauri Schoenus

SYNONYMS
Chaetospora tendo Banks et Sol. ex Hook.f.

FAMILY
Cyperaceae

AUTHORITY
Schoenus tendo (Hook.f.) Hook.f.

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
Yes

ENDEMIC GENUS
No

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Sedges

NVS CODE
SCHTEN

CHROMOSOME NUMBER
2n = 70

CURRENT CONSERVATION STATUS
2012 | Not Threatened

PREVIOUS CONSERVATION STATUSES
2009 | Not Threatened
2004 | Not Threatened

DISTRIBUTION
Endemic. North Island from North Cape to about the southern Waikato, near Awakino and the Bay of Plenty.

HABITAT
Coastal to lowland. Mostly in gumland or tea tree scrub and in regenerating kauri (Agathis australis (D.Don) Lindl.) forest. Sometimes persistent on clay hills coverted to pasture. Rarely colonising the margins of peat bogs.

FEATURES
Rush-like sedge up to 1 m tall. Rhizome short, hard, lignaceous, up to 4 mm diameter, loosely covered in brown or greyish-brown bracts. Culms densely crowded, erect or drooping (often forming dense tangles), 0.4-1.2m long, c.1 mm diameter, light green to dark green, glossy. Leaves reduced to sheathing mucronate bracts, dark red-purple, almost black, the mucro more elongated in the uppermost bracts; mouth of sheath fringed by cobwebby hairs. Panicle 15-120 mm long, very narrow, with more or less distant fascicles of 3-4 branchlets, each fascicle subtended by a sheath 0.5-1.5 mm long, ciliate at the mouth; branchlets flexuous, laterally compressed and toothed along edges, each bearing a solitary spikelet or branched again. Spikelets 5-8 mm long, 2-4-flowered, linear-lanceolate, dark brown to almost black. Glumes 10-13, ovate lanceolate acute, margins ciliate towards the apex with tangled woolly hairs, the lower 6-8 glumes shorter, empty, 2-4 succeeding glumes fertile, the 2 upper glumes empty. Hypogynous bristles 3-6, thread-like, less than or greater than nut. Stamens 2. Style-branches 2(-3). Nut 1.5 x 1.0 mm, pale cream or light brown, unequally biconvex, obovoid, obtuse to retuse, surface smooth.

SIMILAR TAXA
Easily recognised by the large often drooping green culms, sheaths fringed with cobwebby hairs, and preference for poorly drained clay soils (usually in gumland scrub) or under kauri. It could only be confused with S. carsei which is confined to acidic peat bogs and lake margins, has yellow-green to orange-green culms, and whose sheaths lack the distinctive cobwebby orifices diagnostic of S. tendo. Schoenus tendo also differs from S. carsei by having mostly 2 rather than 3 style-branches.

FLOWERING
September - January

FRUITING
October - July

PROPAGATION TECHNIQUE
Difficult. Can be grown from the division of whole plants and fresh seed but resents root disturbance. Best in a permanently damp, somewhat acidic soil in full sun.

ETYMOLOGY
schoenus: Rush

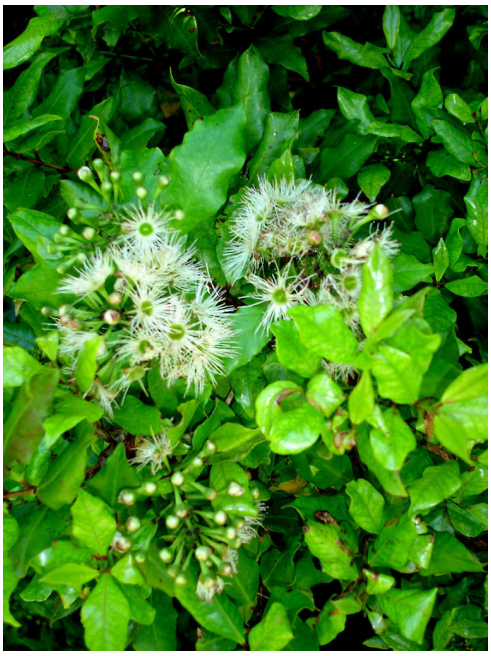
WHERE TO BUY
Not commercially available.

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-tendo/

Syzygium maire



Swamp maire. Photographer: Peter de Lange

Adult tree, Coromandel. Photographer: John Smith-Dodsworth

COMMON NAME
Swamp maire, Maire tawake, Waiwaka

SYNONYMS
Eugenia maire A.Cunn.

FAMILY
Myrtaceae

AUTHORITY
Syzygium maire (A.Cunn.) Sykes et Garn.-Jones

FLORA CATEGORY
Vascular – Native

ENDEMIC TAXON
Yes

ENDEMIC GENUS
No

ENDEMIC FAMILY
No

STRUCTURAL CLASS
Trees & Shrubs - Dicotyledons

NVS CODE
SYZMAI

CHROMOSOME NUMBER
2n = 22

CURRENT CONSERVATION STATUS
2018 | Threatened – Nationally Critical

PREVIOUS CONSERVATION STATUSES
2012 | Not Threatened
2009 | Not Threatened
2004 | Not Threatened

BRIEF DESCRIPTION
Tree with pale bark and sometimes erect aerial roots bearing pairs of yellowish-green oval pointed leaves and white brushy flowers and red blunt-tipped fruit inhabiting wet sites in warmer parts of New Zealand. Leaves 4-5cm long by 1-1.5cm wide. Flowers 1cm wide and with many projecting white filaments, in clusters.

DISTRIBUTION
Endemic. North and South Island from Te Paki south to Rarangi (near Blenheim). Now often scarce or absent over large parts of its former range due to the clearance of swamp forest.

HABITAT
Mostly found in coastal and lowland riparian forest in waterlogged ground, on the margins of swamps and streamsides. Also found in some of montane forest and cloud forest of Northland (e.g., Tutamoe), the western Waikato (Pirongia, Taumatatotara and Tawarau) and the lower margins of Egmont National Park where high rainfall and poor drainage provide ideal conditions for this tree to establish on hill slopes, tablelands and with karst landscapes.

FEATURES
Glabrous tree to c.16 m high. Trunk up to 0.8 m dbh, solitary or with several arising from base, often with knees and where the root plate is exposed frequently bearing pneumatophores. Bark smooth, pinkish grey, grey-brown or white, flaking in soft or brittle, irregular shards. branches numerous, spreading, branchlets numerous, spreading, 4-angled. Leaves opposite, subcoriaceous, adaxially yellow-green to green, glossy often bearing small galls and leaf blisters, midrib impressed, side veins slightly impressed scarcely evident when veiwed from above; abaxial surface pale green, midrib prominently raised, side veins evident when fresh or dried; margins entire, sinuate or undulate; petioles 5-10 mm long, slender, brittle. Lamina 15-60 × 10-25 mm, usually elliptic, sometimes broadly elliptic. Inflorescences in cymose 5-30-flowered clusters,up to 100 mm diameter. Pseudopedicels slender. Hypanthium 2-3 mm long at anthesis, obconic; calyx lobes very short and broad, persistent on fruit. Petals 2-3 mm diameter, orbicular, white, forming calyptrum in bud, caducous. Stamens numerous, 5-12(-18) mm long, white, in 6-8 (or more) indistinct whorls, filaments 4.5-17.5 mm long, white, anthers basifixed, pollen white. Style 5-18 mm long,distinctly broader than stamens and tapering, cream to yellow-green. Ovary adnate to base of hypanthium. Fruit 10-15 mm diameter, subglobose, broad-ellipsoid or elliptic-ovoid, flesh deep crimson, glossy. Seed 1, 6-11 mm long, obovate, testa dull, very hard, covered in fibres, striped pale orange-yellow and pale brown, brown or grey-brown.

SIMILAR TAXA
Syzygium maire is unlikely to be confused with any other indigenous plant. It could possibly be confused with monkey apple (S. smithii) which sometimes grows with S. maire in urban forest remnants, and which differs from S. maire by the calyx lobes which are fused into the calyptrum rather than free, and also by the divergent rather than parallel anther sacs

FLOWERING
November - July

FLOWER COLOURS
White

FRUITING
January - December

PROPAGATION TECHNIQUE
Can be grown from seeds and cuttings. Cuttings are, as a rule, fickle. Seed will germinate readily if the fruits are first steeped in water and the fleshy covering allowed to rot off. Seed can then be sown on damp potting mix (ideally in trays partially immersed in water - which must never be allowed to dry out). Seedlings are delicate and resent root disturbance so need to be treated carefully when pricking out. Nevertheless once seedlings have established (after they have reached 500 mm or more tall) they are easily handled, provided they aren't allowed to dry out. Syzygium maire is a beautiful tree for a waterlogged situation and will flourish in shaded or sunny situations. It is, however, frost tender and drought intolerant.

THREATS
Conservation status raised to Nationally Critical in 2017, following the arrival of myrtle rust in NZ. In addition, many populations now qualify as "Living Dead" as they persist (and are in slow terminal decline) as remnants within partially drained farmland (previously riparian forest). Learn more at myrtlerust.org.nz

ETYMOLOGY
syzygium: From the Greek syzygos 'joined', referring to the paired leaves

ATTRIBUTION
Factsheet prepared by: P.J. de Lange (5 November 2005). Description based on Webb et al. (1988), Webb & Simpson (2001) and observations made from fresh material.
Status updated 1 Nov 2019 by C C Ogle, following
https://www.doc.govt.nz/Documents/science-and-technical/nztcs22entire.pdf

REFERENCES AND FURTHER READING

Cameron, E.K., Cutting, M. 1995. Maire tawake at Browns bay Auckland. Auckland Botanical Society Journal, 50: 66-70.

Webb, C.J.; Simpson, M.J.A. 2011: Seeds of New Zealand Gymnosperms and Dicotyledons. Christchurch, Manuka Press.

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

CITATION

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MORE INFORMATION

https://www.nzpcn.org.nz/flora/species/syzygium-maire/