Auckland's threatened plants Vol. III

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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, 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 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
- 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.

Danhatchia australis

Caption: Under taraire, Great Barrier Island. Jan 1983.
Photographer: Ewen Cameron

Common Name(s):
Yoania, Danhatchia

Current Threat Status (2012):
At Risk - Naturally Uncommon

Distribution:
Indigenous. New Zealand (see de Lange & Molloy 1998): North and South Islands. In the North Island recorded from Waipoua south to Mt Pirongia but mainly found north of Waiuku. Also on Little and Great Barrier and the Mokohinau Islands. In the South Island known only from the Kaihoka Lakes area, north-west Nelson. Also present in Australia where it is known only from one site in New South Wales (see http://plantnet.rbgsyd.nsw.gov.au/cgi-bin/NSWfl.pl?page=nswfl&lvl=sp&name=Danhatchia~australis)

Habitat:
Coastal to lowland, in forest dominated by taraire (Beilschmiedia tarairi) and nikau (Rhopalostylis sapida). This saprophytic orchid grows in deep leaf litter intermixed with a fungus which is mostly associated with nikau. Popular mythology has it that it is exclusively associated with taraire this is incorrect (see de Lange & Molloy 1998). It has also been collected once growing from amongst dense shrubs of Spanish Heather (Erica lusitanica). Easily overlooked as it does not necessarily flower every year, and after heavy flowering plants may rest for several years before flowering again.

Caption: Danhatchia australis
Photographer: John Smith-Dodsworth

Features*:
Saprophytic, subterranean, leafless, rhizomatous, perennial herb lacking chlorophyll. Rhizomes buried deep within partially decomposed leaves and leaf mould; 3-5 mm diameter, vermiform, brittle, more or less opaque, pinkish grey coloured, much-branched and interwoven, irregularly bearing tufts of long colourless hairs, and vestigial scale-leaves. Stems erect up to 200 mm tall, unbranched, pale rose-pink, pinkish-grey, pale brown to mushroom grey, glabrescent to glandular-pubescent. Scale-leaves 1-7(-15), 10-15 mm long, chartaceous, much paler than stem, many-nerved, basal scale-leaves semi-tubular, those higher up open-sheathed. Floral bracts similar to scale-leaves. Pedicels very short. Flowers 1-5(-10), suberect. Perianth 6 mm long, brownish or pinkish-grey with white apices, externally more or less glandular-pubescent. Dorsal sepal more or less oblong, slightly concave; lateral sepals similar, more or less spreading. Petals similar, included within sepals. Labellum sessile, orbicular to broadly oblong, column-embracing; base broad, slightly pouched bearing on each side several fleshy hairs and/or elongated calli; median line thickened; sides becoming thick, fleshy and stiff towards apex, externally tuberculate; margins inturned, thin and membranous; mid-lobe minute, orbicular, deeply concave. Column almost as tall as labellum, basally subcylindric becoming winged, wings very narrow; filament broad, rigid; connective slightly produced; anther tall, erect, stationary, each cell with two sets of transversely oblique, closely packed, vermiform, sectile, pollinia; stigma appearing bilobed, often funneliform, with side lobes that flare widely in old flowers; rostellum long, narrow-triangular, wedged between the long pollinia.

Flowering:
December - February

Fruiting:
December - April

Threats:
Not Threatened in New Zealand - but not very common either, and at risk from orchid collectors. Possibly threatened in Australia although its recent discovery there (2009) suggests it may be more widespread having been simply overlooked.

***Attribution:**
Fact sheet prepared for NZPCN by P.J. de Lange 2 March 2007. Description adapted from Moore & Edgar (1970), supplemented with observations obtained from fresh plants and herbarium specimens.

References and further reading:

de Lange P.J.; Molloy B.PJ. 1998: Two new localities for Danhatchia australis (Orchidaceae). *New Zealand Botanical Society Newsletter 51*: 6
9.

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

For more information, visit:
http://nzpcn.org.nz/flora_details.asp?ID=1374

Deschampsia cespitosa

Common Name(s):
tufted hair-grass, wavy hair-grass

Current Threat Status (2012):
At Risk - Declining

Distribution:
Indigneous. New Zealand: North, South, Stewart and Chatham Islands - generally scarce in the northern third of the South Island and highly threatened on Chatham Island. Otherwise at times (especially in Southland and Fiordland) locally common

Habitat:
Wetlands and lake margins. Coastal to subalpine damp grass or sedge swards near lakes, rivers and swamps. Also found in estuarine margin communities.

Features*:
A stiffly erect green to yellow-green tussock, which stands 20–50 cm tall. The leaves are narrow (1–4 mm wide) and are flat or partly rolled and dull green above and bright green beneath and rough to touch. An attractive grass with blonde flowering heads 1 m or more tall that occur in January. Seed is produced in February.

Flowering:
January

Fruiting:
February

Threats:
Very palatable to farm and feral stock. Grazing and trampling by cattle is the chief cause of decline. Contamination or replacement of NZ forms of Deschampsia with imported forms is also a serious risk.

***Attribution:**
Fact Sheet prepared by P.J. de Lange 1 July 2005.

References and further reading:
Edgar, E.; Connor, H.E. 2000: Flora of New Zealand. Vol. V. Grasses. Christchurch, Manaaki Whenua Press. 650 pp.

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

For more information, visit:
http://nzpcn.org.nz/flora_details.asp?ID=163

Caption: Milford Sound, Fiordland NP
Photographer: Gillian Crowcroft

Caption: Deschampsia cespitosa
Photographer: Cathy Jones

Dichelachne inaequiglumis

Common Name(s):
short-hair plume grass

Current Threat Status (2012):
At Risk - Naturally Uncommon

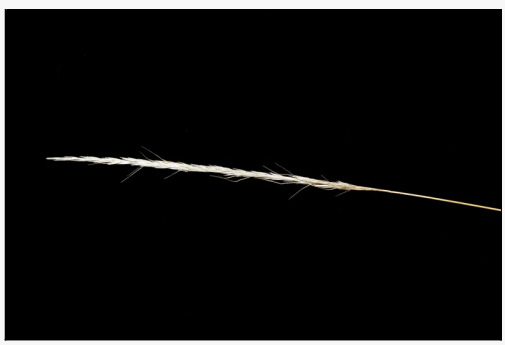
Distribution:
Indigneous. Common from Te Paki south of Auckland. Local south of there until the Wairarapa and Wellington where it is very common. South Island common in Nelson, Marlborough and Westland. One recent (2000) collection from Stewart Island. Also in eastern Australia and Tasmania

Threats:
Not Threatened but often uncommon over large parts of its range

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

For more information, visit:
http://nzpcn.org.nz/flora_details.asp?ID=2104

Caption: Dichelachne inaequiglumis
Photographer: John Smith-Dodsworth



Caption: Dichelachne inaequiglumis
Photographer: John Smith-Dodsworth

Disphyma australe subsp. stricticaule

Common Name(s):
Kermadec Ice plant

Current Threat Status (2012):
Naturally Uncommon

Distribution:
Endemic. Kermadec Island group.

Habitat:
Coastal. On rock stacks, cliff faces, banks, cobble and boulder beaches, or in the vicinity of bird nesting grounds. Widespread and common.

Features*:
Trailing, succulent herb. Stem terete, glabrous. Short shoots erect or nearly so, rarely rooting at nodes. Leaves 3-angled, linear-lanceolate to oblong, acute, often mucronate, tapering to connate base, 6-40 × 4-9 mm; margins papillate. Flowers 20-40 cmm diameter. Sepal keel papillate. Petals uniformly white to deep pink, in 3-5 rows, 10-30 mm long. Stamens 4-6 mm long; inner filaments hairy at base. Stigmas (5)-6-8-(10). Capsule valves 5(-6), with parallel or ± divergent expanding keels; placental tubercle rounded or 0. Seeds brown, obovoid, rugose, c. 1 mm long.

Flowering:
Throughout the year

Fruiting:
Throughout the year

Threats:
Not threatened within its small geographic range

***Attribution:**
Description modified from Webb et al. (1988)

References and further reading:
Webb, C. J.; Sykes, W. R.; Garnock-Jones, P. J. 1988: Flora of New Zealand. Vol. IV. Naturalised Pteridophytes, Gymnosperms, Dicotyledons. 4. Christchurch, New Zealand, Botany Division, D.S.I.R.

For more information, visit:
http://nzpcn.org.nz/flora_details.asp?ID=466

Caption: Fishing Rock, Raoul Island.
Photographer: Peter de Lange

Caption: Macauley Island
Photographer: John Barkla

Doodia mollis

Caption: Kitekite Falls (February)
Photographer: John Smith-Dodsworth

Caption: Kitekite Falls (February)
Photographer: John Smith-Dodsworth

Common Name(s):
Mokimoki, mukimuki

Current Threat Status (2012):
At Risk - Naturally Uncommon

Distribution:
Endemic. Kermadec Islands (Macauley Island). New Zealand: North Island from Awanui south to the Hamilton Basin, Hauraki Plains, coastal portion of the Bay of Plenty and from the Hawkes Bay, and the southern Wairarapa.

Habitat:
Usually found in coastal to lowland forest, often along river margins or in alluvial forest, especially in damp sites or in deep highly fertile forest soils (especially overlying basalt, andesite or alluvium). Occasionally found under light scrub on damp clay banks. This species has also been gathered from the margins of drains running through alluvial forest. Often found in association with Doodia australis, with which it forms sterile hybrids known as D. xdigena Parris. More rarely found sympatric with D. squarrosa, with which it may also hybridise.

Features*:
Small, tufted fern. Rhizomes erect. Stipes 30-150 mm long, clad in pale brown scales; rachises finely hairy. Frond faintly, sweetly scented when crushed. Sterile fronds spreading to prostrate with short, broad pinnae. Fertile fronds erect with longer narrower pinnae. Frond laminae narrowly elliptic to linear, pinnate, pinnules usually basally and broadly lobed, 80-260 x 15-50 mm, firmly fleshy, hairy or glabrous, pink or pinkish-green when young, maturing pale yellow-green to green. Pinnae in 10-20 pairs, the lower and middle ones stalked, the upper adnate. Terminal pinna 7-25 mm long (usually less than one-eigth of the total frond length).
Longest pinnae 8-30 x 2-3 mm. Sori usually running together at maturity. Indusia linear, occasionally hairy.

Flowering:
Not applicable - spore producing

Fruiting:
Not applicable - spore producing

Threats:
An apparently naturally uncommon, biologically sparse species. Although some populations have been lost through land development the species remains rather widespread, and can at times be locally common.

***Attribution:**
Fact sheet [repared for NZPCN by P.J. de Lange (2 February 2005). Description adapted from Parris (1973) and Brownsey & Smith-Dodsworth (2000)

References and further reading:

Brownsey, P.J.; Smith-Dodsworth, J.C. 2000: New Zealand Ferns and Allied Plants. Auckland, David Bateman

Gasper, A.L.; de Oliveira Dittrich, V.A.; Smith A.R.; Salino, A. 2016: A classification for Blechnaceae (Polypodiales: Polypodiopsida): New genera, resurrected names, and combinations. *Phytotaxa 275*: 191–227.

Parris, B.S. 1973: The genus *Doodia* (Blechnaceae: Filicales) in New Zealand. *New Zealand Journal of Botany 10*: 585-610.

Perrie, L.R.; Wilson, R.K.; Shepherd, L.D.; Ohlsen, D.J.; Batty, E.L.; Brownsey, P.J.; Bayly, M.J. 2014: Molecular phylogenetics and generic taxonomy of Blechnaceae ferns. *Taxon 63*: 745-758.

PPG 1: The Pteridophyte Phylogeny Group 2016: A community-derived classification for extant lycophytes and ferns. *Journal of Systematics and Evolution 54*: 563-603.

Wilcox, M.; Warden, J. 2017: Botany of Hillsborough coast bush reserves, Manukau Harbour, Auckland. *Auckland Botanical Society Journal 72*: 32-46.

For more information, visit:
http://nzpcn.org.nz/flora_details.asp?ID=252

Doodia squarrosa

Current Threat Status (2012):
At Risk - Naturally Uncommon

Distribution:
Endemic. Kermadec Islands (Macauley Island). New Zealand: North Island from Northland to Wellington.

Habitat:
Coastal and lowland alluvial forest, river banks (often in the flood zone), near water falls and in geothermal areas, usually in dappled light or sunny situations. Appears to show a strong preference for base-rich substrates such as basalt, limestone, and the apatite-rich facies of greywacke.

Features*:
Tufted fern arising from shortly erect rhizomes. Stipes 50-150(-200) mm long, along with rachises clad in sparse, brown, caducous scales otherwise glabrous. Fronds dimorphic, the sterile ones prostrate and smaller than the erect, fertile ones. Fronds 14-450 x 15-80 mm, firmly fleshy, glabrescent, pink when young maturing green to dark green. Pinnae in 15-35 pairs, lower and middle pairs stalked, the others fused (adnate) to stipe. Fertile terminal pinna 15-155 mm (conspicuously longer than all other pinnules, up to 1/8 length of entire frond). Indusia linear.

Flowering:
Not applicable - spore producing

Fruiting:
Not applicable - spore producing

Threats:
Occupying a range of habitats, several of which are vulnerable to the spread of aggressive weeds. Within Auckland City the species has virtually been eliminated by excessive plant collecting, a factor which also threatens it in the Wellington region. Populations within the geothermal fields of the Bay of Plenty are at serious risk from the spread of taller weed species, especially grasses, such as Indian doab (*Cynodon dactylon*).

Caption: Stony bay, Coromandel
Photographer: John Smith-Dodsworth

Caption: Stony bay, Coromandel
Photographer: John Smith-Dodsworth

***Attribution:**
Fact sheet prepared for NZPCN by P.J. de Lange (2 February 2005). Description adapted from Parris (1973) and Brownsey & Smith-Dodsworth (2000)

References and further reading:

Brownsey, P.J.; Smith-Dodsworth, J.C. 2000: New Zealand Ferns and Allied Plants. Auckland, David Bateman

Gasper, A.L.; de Oliveira Dittrich, V.A.; Smith A.R.; Salino, A. 2016: A classification for Blechnaceae (Polypodiales: Polypodiopsida): New genera, resurrected names, and combinations. *Phytotaxa 275*: 191–227.

Parris, B.S. 1973: The genus *Doodia* (Blechnaceae: Filicales) in New Zealand. *New Zealand Journal of Botany 10*: 585-610.

Perrie, L.R.; Wilson, R.K.; Shepherd, L.D.; Ohlsen, D.J.; Batty, E.L.; Brownsey, P.J.; Bayly, M.J. 2014: Molecular phylogenetics and generic taxonomy of Blechnaceae ferns. *Taxon 63*: 745-758.

PPG 1: The Pteridophyte Phylogeny Group 2016: A community-derived classification for extant lycophytes and ferns. *Journal of Systematics and Evolution 54*: 563-603.

Wilcox, M.; Warden, J. 2017: Botany of Hillsborough coast bush reserves, Manukau Harbour, Auckland. *Auckland Botanical Society Journal 72*: 32-46.

For more information, visit:
http://nzpcn.org.nz/flora_details.asp?ID=165

Dracophyllum patens

Caption: Dracophyllum patens at Pakirarahi (June)
Photographer: John Smith-Dodsworth

Caption: Dracophyllum patens at Pakirarahi (June)
Photographer: John Smith-Dodsworth

Common Name(s):
Great Barrier Inaka

Current Threat Status (2012):
At Risk - Naturally Uncommon

Distribution:
Endemic. New Zealand; North (Coromandel Peninsula (Maumaupaki, Table Mountain, upper Kauaeranga Valley, Pakirarahi, Hihi). and Great Barrier Islands

Habitat:
Confined to exposures of rhyolite, hydrothermally altered andesites, and dacite rock within montane cloud forest (above 300 m a.s.l.) and regenerating shrubland within that altitudinal zone. Very rarely in tall forest.

Features*:
Sparingly branched, erect shrub up to 1.2 m tall (usually less). Mature bark grey, much marked by leaf abscission scars. Leaves often pinkish-green, to red-green, ascending at first, maturing patent and spreading; leaf sheath 8-10 x 3-4 mm with scarious margins, sheath narrowing to a thick subulate lamina, this 35.0-40.0 × 6.0-6.5 mm, broadly lanceolate, apex acute, with margins minutely serrulate. Leaves of juveniles less rigid; sheath to 15 mm long, lamina to 100 m. x 10 mm. Inflorescence terminal on lateral branchlets; racemose, 2-6-flowered, racemes subtended by a tuft of leaves. Lowest bracts foliose; sheath 3-4 mm long, shoulder ciliate, lamina ± 15 mm. long, ciliolate, ± pubescent near sheath. Sepals broad, acute, sparingly ciliolate. Corolla-tube c.4 mm long, white or pinkish white, subcampanulate. Style stout, c.2 mm long. Capsule more or less 2 mm diameter.

Flowering:
Throughout the year

Fruiting:
Throughout the year

Threats:
Listed because it is a narrow range endemic . It is locally abundant in the places it has been reported from.

***Attribution:**
Fact sheet prepared for NZPCN by P.J. de Lange (14 May 2006). Description adapted from Allan (1961)

References and further reading:
Allan, H.H. 1961: Flora of New Zealand. Vol. I. Government Printer, Wellington

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

For more information, visit:
http://nzpcn.org.nz/flora_details.asp?ID=473

Dracophyllum urvilleanum

Caption: Dracophyllum urvilleanum
Photographer: Shannel Courtney

Caption: Dracophyllum urvilleanum
Photographer: Shannel Courtney

Common Name(s):
D'urvilles Grass Tree

Current Threat Status (2012):
At Risk - Naturally Uncommon

Distribution:
Endemic. northern South Island where it is known from Abel Tasman National Park eastwards to the Marlborough Sounds.

Habitat:
Coastal. Growing on cliff faces and in coastal scrub and forest often within the splash zone.

Features*:
Small single–stemmed shrub or small tree 2–8 m tall. Bark on old branches grey to greyish brown, finely fissured, young stems reddish brown. Leaves dimorphic. Juvenile leaves spirally arranged along branches, spreading to recurved; lamina sheath 5.0–6.0 × 1.3–1.5 mm, truncate, yellowish green, margin membranous with the upper half ciliate; lamina 79.0–145.0 × 1.5–3.7 mm, linear–triangular, margins serrulate with 40–50 teeth per 10 mm. Adult leaves spreading to recurved; lamina sheath 3.6–9.0 × 2.5–3.0 mm, thinly coriaceous, shoulders truncate to auricled and margins membranous with the top half ciliate; lamina 33.0–128.0 × 0.42–1.68 mm, linear to linear–triangular, adaxial surface sometimes shortly scabrid; margins serrulate with 45–60 teeth per 10 mm. Inflorescence a terminal raceme on lateral branchlets; shorter than leaves, erect, lax, 14–23 mm long, oblong. Inflorescence bract overtopping flowers, 15.4–35.0 × 0.5–0.6 mm, ovate–lanceolate, surfaces rugose; margins serrulate. Flowers hidden by leaves, 2–5, pedicellate; flower bracts overtopping flowers, 11.3–15.6 × 0.4 0.5 mm, narrowly ovate; margins ciliate; pedicel 0.5 – 0.7 mm long. Sepals 5.5–7.0 × 1.2–3.0 mm, ovate–lanceolate, equaling corolla tube, adaxial surface with the top half pubescent; margins ciliate in the upper half; apices acute. Corolla white; corolla tube 3.5–5.0 × 1.5–2.0 mm, narrowly–campanulate, widened at mouth; corolla lobes spreading to reflexed, 1.9–2.0 × 1.3–1.5 mm, ovate, shorter than corolla tube, apices acute, adaxial surface papillate. Stamens inserted on corolla tube in the upper third, filaments 0.5–0.8 mm long; anthers included, 0.5–1.0 mm long, oblong, light yellow. Ovary 1.0–1.5 × 1.0–1.3 mm, globose, apex round to truncate; nectary scales 0.5–0.6 × 0.4–0.5 mm, rectangular; apices subacute to retuse; style included, 1.3–2.0 mm long, glabrous, not lengthening in fruit; stigma capitate. Fruit with the old sepals widely spreading, 2–3 × 2.0–2.5 mm, oblong, light brown; apex truncate. Seeds 0.95–1.0 mm, ovoid, yellowish brown, testa slightly reticulate.

Flowering:
(September-) October to January

Fruiting:
December to March

Threats:
Though widespread, the species is threatened at a few sites by coastal development, human traffic. Fire is considered a serious potential threat at the majority of sites. This is because the species is very flammable and following fire many of the coastal habitats in which this species grows become dominated by gorse (Ulex europaeus) which appears to out compete it.

***Attribution:**
Fact sheet prepared for NZPCN by P.J. de Lange (3 October 2012). Description adapted from Venter (2009)

References and further reading:
Venter, S. 2009: A taxonomic revision of the genus *Dracophyllum* Labill. (Ericaceae). Unpublished Phd Thesis, Victoria University of Wellington, 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

For more information, visit:
http://nzpcn.org.nz/flora_details.asp?ID=102

Eleocharis neozelandica

Caption: Waikuku Beach,
Photographer: Peter de Lange

Caption: Waikuku Beach
Photographer: Peter de Lange

Common Name(s):
Sand spike sedge, spikesedge

Current Threat Status (2012):
At Risk - Declining

Distribution:
Endemic to North and South Islands. Scarce in the South Island and now only known from Farewell Spit.

Habitat:
Damp sand flats, often near streams or in places where fresh water filters through the sand at depth or where it is temporarily ponded.

Features*:
Rhizomatous, widely creeping and mat-forming spike-sedge of damp sandy flats. Rhizomes brown, 1 mm diam. Culms 30-60(-80) x 0.5-1 mm, rigid, curved, sheaths membraneous, lower purple-brown, upper brown with orifice slight to very oblique, tapering to a sharp point. Spikelets 5-6(-8) x 1-4 mm, 4-10-flowered, broadly ovoid, acute to obtuse, broader than culm. Glumes 2.5-3.5 mm, ovate, obtuse, uninverved. Hypogynous bristles absent. Stamens (2-)3. Style 2-fid. Nut 1.5-2 x 1 mm., assymetrically obovate, biconvex, narrowed in lower half, smooth, shining, golden-brown, style base persistent, small.

Flowering:
Flowers may be found throughout the year

Fruiting:
Fruit may be found throughout the year

Threats:
Vulnerable through natural perturbations of its sand flat habitat. Some populations have been lost due to coastal development and through the spread of weeds. Naturally an ephemeral species which does not generally persist for long at any particular site.

***Attribution:**
Description adapted from Moore and Edgar (1970) and Stanley (1999)

References and further reading:

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

Stanley, R. 1999. A new record for *Eleocharis neozelandica*. Auckland Botanical Society Journal, 54: 2

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

For more information, visit:
http://nzpcn.org.nz/flora_details.asp?ID=167

Elingamita johnsonii

Common Name(s):
Elingamita

Current Threat Status (2012):
At Risk - Naturally Uncommon

Distribution:
Endemic. Three kings Islands where it is known only from West Island and two nearby rocky islets in the Princes Group.

Habitat:
Pohutukawa (Metrosideros excelsa Sol. ex Gaertn.) forest and coastal shrub on West island, where it is usually an understorey shrub or small tree. Also grows in exposed places as a canopy emergent especially on HInemoa Rock in the Princes Group.

Features:
Stout mostly dioecious tree up to 8 m tall (usually much less). Branches ascending, initialy fleshy to subsucculent, soon becoming woody. Bark grey, smooth (finely lenticellate). Leaves on stout, succulent, coriaceous petioles up to 10 mm long; lamina rigidly coriaceous, 100-200 x 40-190 mm, dark glossy green above, pale beneath, obovate to broadly obovate, margins entire, midrib conspicuous, side veins evident. Inflorescences terminal, paniculate up to 60 x 60 mm, enlarging in fruit; bracteate with bracts shedding as inflorescence matures. Flowers with valvate sepals. Male flowers yellow to yellowish -pink, 4-6-partite, corolla longer than sepals (3-6 x 1.0-1.5 mm), narrowly obovate to broadly oblong. Filaments longer than corolla; anthers elliptic, pollen yellow to yellow-orange. Female flowers pale yellow to pink bearing rudimentary or rarely functional stamens, corolla shorter than sepals, 2.5 x 1-1.5 mm, adnate, shortly oblong to tubular, dehiscing after flowering as a ring. Ovary ovoid, tapered into a stout style. Fruit a globose to subglobose, drupe up to 20 mm diameter, bright red with white flesh. Seed single, enclosed within a brittle subcoriaceous grey-brown to greyish-white endocarp.

Caption: In fruit (in cultivation)
Photographer: Rebecca Stanley

Caption: In fruit (in cultivation)
Photographer: Rebecca Stanley

Flowering:
February - May, sometimes also August - November

Fruiting:
Fruit take a year to ripen so can be present at anytime

Threats:
Currently not threatened but the entire world population occupies a rather small area on one rocky island and two very small adjacent rock islets. These habitats are currently rodent-free. So the species remains vulnerable to stochastic events, fire, and as the fruit is very palatable rats.

For more information, visit:
http://nzpcn.org.nz/flora_details.asp?ID=476

Epacris sinclairii

Common Name(s):
Sinclair's Tamingi

Current Threat Status (2012):
At Risk - Naturally Uncommon

Distribution:
Endemic. North Island. Great Barrier Island where it is confined to the Central Mount Hobson Massif, and the Coromandel Peninsula, where it is only known from the Upper Kauaeranga Valley.

Habitat:
A rhyolite endemic, preferring cloud Forest (where it can be epiphytic) and associated rock tors. On Great Barrier Island, due to past forest logging and associated land clearance plants have also colonised gumland scrub and other open, improverished clay pans.

Features*:
Stout, erect, bushy, usually spreading shrub or small tree 1-8 x 1-3 m. Basal trunk stout, up to 100 mm dbh; bark grey-brown, flaking in long strips. Branches numerous, very leafy, virgate, spreading, minutely hairy when young, becoming glabrescent. Leaves ascending, patent to sub patent, close-set, firmly coriaceous, 7-15(-20) x 2-5(-8) mm, broadly lanceolate to ovate, rhomboidal-ovate to oblong-ovate; apex obtuse, often terminating in a distinctive cream-coloured or pale-green knob (never acuminate or mucronate); veins obscure on upper side, distinct on underside, bright green to bronze-green above, paler beneath. Flowers axillary, solitary, often aggregated toward branchlet tips. Peduncles 2-2.5 mm long. Corolla 5-8 mm diameter, white, lobes 5, spreading, broad-oblong, obtuse. Stamens 5, filaments, inserted on corolla tube, anthers red-brown to black, scarcely exserted. Capsules 1.5-2.5 mm long, subglobose, 5-lobed.

Caption: Table Mountain (Whakairi), Coromandel
Photographer: Cynthia Roberts

Caption: Table Mountain (Whakairi), Coromandel
Photographer: Cynthia Roberts

Flowering:
Mainly April - though occasional flowers may be seen in September-October

Fruiting:
Mainly May-July

Threats:
Threatened by the heavily reduced habitat the species now occupies. In the few locations where it is known it is regenerating freely.

***Attribution:**
Fact Sheet prepared for NZPCN by P.J. de Lange 15 octyober 2005. Description by P.J. de Lange.

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

For more information, visit:
http://nzpcn.org.nz/flora_details.asp?ID=63

Eryngium vesiculosum

Common Name(s):
Sea holly, coastal eryngo

Current Threat Status (2012):
At Risk - Declining

Distribution:
Possibly endemic. New Zealand, North and South Islands from the Manawatu and Eastern Wairarapa Coastline south. In the South Island found mainly east of the main divide. Australian plants, which include the type may not be same as the New Zealand plant.

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

For more information, visit:
http://nzpcn.org.nz/flora_details.asp?ID=1868

Caption: Fruit
Photographer: John Barkla


Caption: Eastern Wairarapa
Photographer: Pat Enright

Euphorbia glauca

Caption: Euphorbia glauca at Ninety Mile Beach
Photographer: Bill Campbell

Caption: Mana Island
Photographer: John Sawyer

Common Name(s):
shore spurge, sea spurge, waiu-atua, sand milkweed

Current Threat Status (2012):
At Risk - Declining

Distribution:
Endemic to New Zealand and the Chatham Islands.

Habitat:
Coastal cliffs, banks and talus slopes, sand dunes and rocky lake shore scarps.

Features:
Perennial herb with multiple erect stems up to 1 m tall and underground rhizomes. Stems reddish; leaves alternate, blue-green. Flowers in terminal bunches, each flower surrounded by a deep red cup-like structure with purple glands. Sap a burning milky juice. Flowers are produced from October to February and fruit occur from December to May.

Flowering:
September to March (sporadic flowering throughout the year can occur)

Fruiting:
December to July

Threats:
Domestic and feral cattle, sheep, pigs and possums are the major threats throughout this species range, mainly through browse and trampling. Competition from taller vegetation is significant at many sites. Coastal development (e.g., road widening) and erosion are further common threats to most populations. Population fragmentation makes the remnants vulnerable to sudden decline. Some populations on the West Coast of the South Island appear to have succumbed to a fungal disease.

References and further reading:

Benham, S. 2001. Field trip to Hauturu little Barrier island March 2001 and a few observations of Waiuatua shore spurge (*Euphorbia glauca*). Auckland Botanical Society Journal, 56: 10-43

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

For more information, visit:
http://nzpcn.org.nz/flora_details.asp?ID=125

Ficinia spiralis

Common Name(s):
pingao, golden sand sedge, pikao

Current Threat Status (2012):
At Risk - Declining

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

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

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

Caption: Kaingaroa, Chatham Island. Jun 2013.
Photographer: Jeremy Rolfe

Caption: Mangawhai Wildlife Reserve, north of Auckland
Photographer: John Sawyer

Flowering:
Spring and early summer

Fruiting:
Late summer

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

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

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

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

For more information, visit:
http://nzpcn.org.nz/flora_details.asp?ID=164

Fimbristylis velata

Caption: Lake Whangape. Mar.
Photographer: John Smith-Dodsworth

Caption: Lake Whangape. Mar.
Photographer: John Smith-Dodsworth

Common Name(s):
Fimbristylis

Current Threat Status (2012):
At Risk - Naturally Uncommon

Distribution:
Indigenous. North Island from Ngawha Springs, the Bay of Islands, Pouto Peninsula and Great Barrier Island south to Lake Taupo. Most common in the Huntly Basin, particularly around Lakes Whangape, Rotongaro and Rotongaroiti. It is present near Ohinemutu and Whakarewarewa Geothermal Fields, near Rotorua and at Karapiti near Wairakei. Present in Australia and probably elsewhere.

Habitat:
A strict annual which is most often found along the shoreline or receeding shallow lakes and river margins where it grows in damp mud and organic sediments. It has also been found growing on permanently damp ground around active fumaroles within geothermal areas, and as a sporadic weed in ephemeral wetlands created by urban redevelopment within Hamilton City.

Features*:
Annual sedge forming small pubescent, spreading tufts on freshly exposed sunny, usually damp and/or muddy ground. Culms 30-280 x 0.5-0.8 mm, rather flaccid and spreading, finely pubescent. Leaves usually < culms, brown-green to glaucous green, filiform to linear-lanceolate, channelled near base; sheaths broader, light brown to pale grey. Inflorescence a compound spreading umbel 10-40-80 mm long, sometimes reduced to a few near sessile spikelets; subtending bracts 3-4(-6) leaf-like,1-3 of these > umbel width. Spikelets 3.5-8 mm long, stalked, pale brown to glaucous brown. Glumes numerous, elliptic, with a prominent, rigid, dark green scabrid keel, often extending to a mucro, and usually recurved in the lowermost glume of each spikelet. Stamens 1(-2), Style bifid, the bulbous base ringed by fine retrorse cilia, sufficiently copious to cover the ovary, but not (or rarely) extending beyond the mid-point. Nut 0.8-1 x 0.5-0.6 mm diameter, cream-coloured, biconvex, orbicular, smooth.

Flowering:
October - March

Fruiting:
October - June

Threats:
Long regarded as seriously at risk of extinction because the few known occurrences were on the brink of extinction this situation changed in the late 1980s following its surprise rediscovery in the Waikato lowlands, where, particularly around Lakes Whangape, Rotongaro and Rotongaroiti it can be one of the dominant species growing on the receding lake shores during summer. Ecologically this is a biologically sparse species which appears to be an opportunistic of freshly disturbed wetland habitats. For example it has even been collected as a wetland weed in parts of Hamilton City.

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

References and further reading:

Moore, L.B.; Edgar, E. 1970: Flora of New Zealand. Wellington, Government Printer (as *Fimbristylis velata*)

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

Wilson, K.L. 1993: Cyperaceae. *Flora of New South Wales* 4: 378-379

For more information, visit:
http://nzpcn.org.nz/flora_details.asp?ID=257

Fuchsia procumbens

Common Name(s):
creeping fuchsia, climbing or trailing fuchsia

Current Threat Status (2012):
At Risk - Naturally Uncommon

Distribution:
Endemic. North Island from the Ninety Mile Beach and Perpendicular Point south to Maunganui Bluff in the west and Kennedy Bay (Coromandel Peninsula) in the east. It is known as a naturalised plant on Kapiti Island.

Habitat:
A strictly coastal species. F. procumbens has been collected from cobble/gravel beaches, coastal cliff faces, coastal scrub and grassland, dune slacks and swales, and from the margins of saltmarshes (in places where it would be inundated during spring tides). It is quite tolerant of naturalised grasses and may be found growing amongst dense swards of kikuyu grass (Pennisetum clandestinum Chiov.).

Features:
Subdioecious, lianoid, creeping, glabrescent, prostrate shrub forming large scrambling masses. Stems woody, pliant, slender 3-6 mm diameter, up to 2 m long; branchlets even more slender. Petioles filiform, 15-30 mm long, glabrous or sparsely hairy. Leaves 5-20 x 5-20 mm, suborbicular to broad-ovate, membranous, glabrous to glabrate, sinuate, subserrulate; base subcordate; apex obtuse or rounded. Flowers solitary, erect, pedicels erect, 5-8 mm long, slender. Flora tube 6-12 mm long, golden yellow, tubular-campanulate. Sepals 5-8 mm, lanceolate or narrow-lanceolate, purplish at apices, sharply reflexed. Petals absent. Filaments 2-4 mm, slender, purple. Style 8-16 mm, > staminodes in female flowers, almost = to stamens in perfect flowers; stigma capitate to 4-lobed. Berry 15-25 x 5-10 mm, ovoid-oblong to obovoid, crimson to magenta often with a waxy bloom.

Flowering:
September - May

Fruiting:
November - July

Caption: Great Barrier Island
Photographer: Rebecca Stanley

Caption: Great Barrier Island
Photographer: Rebecca Stanley

Threats:
At various times regarded as seriously threatened, partly because some populations comprise only the single sex-type. However, comprehensive surveys throughout this species range have discovered new populations and confirmed the persistence of the majority of the older sites. Indeed its range has hardly contracted, and it would seem that the distribution of sex-types is natural. Because the species is so tolerant of environmental disturbance and weeds it is now regarded as biologically sparse. However, some populations have been eliminated recently by coastal development for holiday homes. If this trend continues then this species will probably qualify for a higher level of threat in the not to distant future.

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

For more information, visit:
http://nzpcn.org.nz/flora_details.asp?ID=258

Geranium microphyllum

Common Name(s):
None known

Current Threat Status (2012):
At Risk - Naturally Uncommon

Distribution:
Endemic to the Auckland and Campbell Islands.

Habitat:
A species of sub Antarctic herbfields and turfs.

Features:
Perennial herb arising from a stout, thick somewhat woody taproot. All parts covered in soft backward or forward projecting appressed hairs. Stems slender, prostrate, with few to many branches. Basal leaves not persistent for duration of growing season, Leaf stalks (petioles) up to 17 cm long, leaf 4 cm diameter, kidney-shaped to circular or broadly ovate, deeply lobed, almost to midrib, sometimes more shallowly divided. Lobes 3-5, narrow to broadly obovate or oblong, apex rounded or shortly spine-tipped (mucronate). Stem leaves smaller, with fewer lobes. Flower stalks (peduncles) 1-6(-9) cm long. Flowers 1-2. Sepals 3-5(-6) × 0.8-2(-2.5) mm, lanceolate or elliptic-oblong, purple or with a purple marginal line. Petals white, (4-)6(-9) × 2.5-4.5 mm, broadly obovate. Seed 1.5-1.9 mm long, oblong.

Flowering:
October - February

Fruiting:
No information available

Threats:
Geranium microphyllum s.s. is only known from the sub Antarctic islands. It is rarely collected.

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

For more information, visit:
http://nzpcn.org.nz/flora_details.asp?ID=751

Geranium solanderi

Caption: Geranium solanderi.
Photographer: John Smith-Dodsworth

Caption: Geranium solanderi
Photographer: Peter de Lange

Common Name(s):
Solander's geranium

Current Threat Status (2012):
At Risk - Declining

Distribution:
Indigneous. North, South and Chatham Islands (including many northern offshore islands). Indigenous to Australia.

Habitat:
Coastal to montane (0-600 m a.s.l.). Formerly widespread in short tussock grasslands, on lava fields, clay pans and on rocky coastal headlands.

Features*:
Perennial herb 0.12-1.0 m tall. Rootstock 2.4-19.1 mm diam., without fusiform roots. Stem erect to ascending, with straight, patent to retrorse, non-appressed, eglandular hairs 0.4-1.8 mm long. Basal leaves in a ± deciduous rosette; lamina 12-45 × 14-57 mm, polygonal in outline, cordate, palmatifid (divided for 0.5-0.8 of its length), pilose, with ± erect, eglandular hairs; segments 5-7, obtriangular, 2.2-6.8 mm at the base; petioles to 180 mm long, with patent, eglandular hairs 0.4-1.7 mm long; stipules 2.2-8 × 0.5-2.1 mm, with eglandular hairs on abaxial surface and on the margin, glabrous adaxially. Inflorescence 2-flowered cymules, solitary; peduncles (4-)40(-61) cm long, with patent to retrorse, not appressed, eglandular hairs 0.3-2.0 mm long; bracteoles 1.5-7.4 × 0.3-0.8 mm, lanceolate, with eglandular hairs on abaxial surface and on the margin, glabrous adaxially; pedicels 8-34 mm long, with patent to retrorse, not appressed, eglandular hairs 0.2-2.0 mm long; pedicel and peduncle together usually overtopping the subtending leaf. Sepals (3.2-)4.2-5.2(-6.3) × 1.6-2.7 mm, lanceolate, with scarious margins 0.1-0.2 mm wide, with eglandular hairs 0.1 mm long on the abaxial side (and eglandular hairs 0.4-1.8 mm long on the margin), glabrous adaxially. Petals (3-)6(-8.1) × 1.4-4.2 mm, entire, without claw, glabrous on both sides, ciliate on the basal margin, purplish. Filaments 2.4-4.5 mm long, yellowish, glabrous on both sides, ciliate on the basal margin, with hairs up to 0.1-0.3 mm long; anthers 0.4-0.8 × 0.2-0.7 mm, yellowish. Nectaries glabrous. Gynoecium 2.5-4.8 mm long, yellowish. Fruit 13.1-20.6 mm long; mericarps 2.2-3.2 ×1.1-1.8 mm, smooth, with erect-patent, eglandular hairs 0.1-1.5 mm long, usually blackish; rostrum 8.8-15.1 mm long, without a narrowed apex, with erect-patent, eglandular hairs 0.1-1.1 mm long; stigmatic remains (0.6-)1-1.4(-1.6) mm long, with 5 hairy lobes. Seeds 1.6-2.2 × 0.9-1.6 mm, reticulate.

Flowering:
September - April

Fruiting:
October - June

Threats:
Not Threatened. However , it has declined from large parts of its former range due to rabbit browsing and the spread of taller, faster growing weeds. If these factors continue it may well qualify in the not to distant future as Threatened.

***Attribution:**
Fact Sheet prepared by P.J. de Lange 14 April 2008. Description adapted from Aedo et al. (2005) supplemented with observations based on fresh and cultivated specimens.

References and further reading:
Aedo, C., O. Fiz, M. L. Alarcón, C. Navarro, and J. J. Aldasoro. 2005. Taxonomic revision of *Geranium* sect. *Dissecta* (Geraniaceae). *Systematic Botany 30*: 533-558.

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

For more information, visit:
http://nzpcn.org.nz/flora_details.asp?ID=2140

Geranium traversii

Caption: Chatham Islands
Photographer: John Sawyer

Caption: Chatham Islands
Photographer: John Sawyer

Common Name(s):
Chatham Island geranium

Current Threat Status (2012):
At Risk - Naturally Uncommon

Distribution:
Endemic. Chatham Islands group. Known from all the main islands, islets and rock stacks except The Forty Fours, Sisters, Pyramid and Western Reef.

Habitat:
Coastal cliffs, consolidated or mobile sand dunes, steep peat-filled crevices, limestone cliffs and rocks, rock crevices and erosion hollows.

Features*:
Leafy, silvery grey to greyish-green, rosette-forming perennial herb forming patches up to 0.8 × 0.6 m. Caulorrhiza stout, deeply descending, woody at base, usually branched near ground level, often stoloniferous, up to 30 mm diameter, densely covered in persistent, frayed, petiole and stipule remnants. Stem and leaves usually densely covered in silvery hairs. Basal leaves on slender petioles up to 220 mm long. Stipules broad-ovate, cuspidate. Lamina 15-100 mm diameter, broad-reniform, orbicular, mostly lobed to ½ way but sometimes deeper; lobes 5-7(-8), cuneate, often toothed or lobed further. Cauline leaves similar but smaller. Flowers solitary 20-25(-30) mm diameter; peduncles up to 100 mm long, retrorsely hairy; bracteoles narrow-lanceolate, subacuminate. Sepals 7-11 × 2-4 mm, narrow-ovate to broad-ovate, densely covered with grey hairs, cuspidate. Petals 12(-16) × 10(-14) mm, broad-obovate or obovate-oblong, shortly clawed, pink or white, rarely pale purple, in all usually with up to 5 more darkly pigmented, longitudinal veins. Stamens < or > pistil. Mericarps silky hairy; beak 8-24 mm long. Seed 2.2-2.8 mm long, surface dull, dark brown, red-brown, dark purple-brown to black-brown, elliptic-oblong, not compressed, cells of primary reticulum, 4-6-sided, broadly oblong to isodiametric (0.04-0.15 mm long)

Flowering:
July-June (peaking in summer)

Fruiting:
July-June

Threats:
Not threatened. However, it has probably declined from large parts of its former range on Chatham and Pitt Islands. In some sites it may be threatened by invasive weeds, especially marram grass (Ammophila arenaria). It remains abundant and secure on all the outer vegetated islands except the Sisters, Forty Fours, Pyramid and Western Reef.

***Attribution:**
Fact Sheet prepared by P.J. de Lange 14 April 2008. Description adapted from Aedo et al. (2005) supplemented with observations based on fresh and cultivated specimens.

References and further reading:

Aedo, C., C. Navarro, and M. L. Alarcón.2005a. Taxonomic revision of *Geranium* sections *Andina* and *Chilensia* (Geraniaceae). *Botanical Journal of the Linnean Society 149*: 1-68.

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

For more information, visit:
http://nzpcn.org.nz/flora_details.asp?ID=507

Gunnera arenaria

Current Threat Status (2012):
Declining

Distribution:
Endemic. North, South and Stewart Islands from the Pouto Peninsula south and mainly westerly in its distribution. Occurring locally throughout.

Habitat:
A coastal species of damp sand ground, dune slacks and swales, and along tidal river margins. It also grows on coastal sandstone bluffs in some parts of the country.

Flowering:
November - March

Fruiting:
November - March

Threats:
At risk from coastal development, wetland drainage and the spread of invasive weeds. Some populations have been destroyed by coastal erosion.

For more information, visit:
http://nzpcn.org.nz/flora_details.asp?ID=170

Caption: Gunnera arenaria; Flowers, Farewell Spit Nature Reserve
Photographer: Simon Walls

Caption: Leaves and flowers, Farewell Spit Nature Reserve
Photographer: Simon Walls