



Carex sp. as recorded in West Gisborne: Biological Survey of Reserves



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

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Introduction

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

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

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

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

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

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

The New Zealand Botanic Region

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

About the Network

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

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

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

That work has included:

- Training people in plant conservation
- Publishing plant books, reports and posters
- Raising money for the David Given Threatened Plant Research Trust to pay for plant conservation research scholarships
- Advocacy to raise awareness of the importance of plant life in general and especially New Zealand's status as a Global Centre of Plant Diversity
- Lobbying central and regional government and business to protect indigenous plant life
- Educating people about plant life through the Network website
- Connecting people through the monthly newsletter, the Network conference and the annual general meeting

What is a threatened plant?

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

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

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

Carex comans

Common Name(s):

Sedge

Current Threat Status (2012):

Not Threatened

Distribution:

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

Habitat:

Coastal to subalpine. Usually in free draining soils either in the open or under scrub or tall forest in relatively open sparsely vegetated situations. It often naturalises in urban areas.

Features*:

Tufts very dense, very leafy, red, yellow-green, or lime-green. Culms 60-400 mm long, < 1 mm diameter, terete, glabrous, flaccid, occasionally much elongating at maturation of fruit and drooping to the ground; basal sheaths dull brown to purple-black. Leaves usually > culms, 0.5-1.5 mm wide, drooping above, concavo-convex, adaxial surface matt, abaxial surface more deeply coloured and shining, margins scabrid, tips rarely curled. Spikes 4-8, linear-oblong; terminal 1(-2) spikes male, very slender; remaining spikes female occasionally with a few male flowers at the base, 5-25 × 3-4 mm, distant, the uppermost 1-2 sessile, the lower on filiform peduncles, often drooping. Glumes (excluding awn) often slightly < utricles, ovate-lanceolate, usually emarginate to more deeply bifid at the top with a rather short scabrid awn, light brown or reddish brown with a paler midrib, membranous. Utricles 2.5-3.5 × c.1.0 mm, unequally biconvex to ± plano-convex, lanceolate, elliptic-lanceolate or ovate-lanceolate, reddish brown, pale straw-coloured at the base, obscurely ribbed on both faces, becoming smooth when fully mature, lateral nerves usually prominent, margins of upper half sharply serrate, narrowed above to a bifid beak c.1 mm long, with slender scabrid crura. Stigmas 3. Nut 1.5-2 mm. long, trigonous, ovoid to oblong-ovoid, dark brown.

Flowering:

Throughout the year

Fruiting:

Throughout the year

Threats:

Not Threatened - often naturalised in urban areas

*Attribution:

Fact Sheet prepared by P.J. de Lange (10 August 2006). Description adapted from Moore and Edgar (1970)

References and further reading:

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

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

For more information, visit:

http://nzpcn.org.nz/flora_details.asp?ID=1403



Caption: Female spike. In cultivation. Dec 2007.

Photographer: Jeremy Rolfe



Caption: In cultivation. Dec 2007.

Photographer: Jeremy Rolfe

Carex dipsacea

Common Name(s):

Teasel Sedge

Current Threat Status (2012):

Not Threatened

Distribution:

Endemic. New Zealand: North and South Islands. Widespread from about the northern Waikato South. Naturalised around Auckland City

Habitat:

Coastal to subalpine. Favouring wetlands this species usually grows along rivers, lakes and ponds within sand dunes, tall forest, shrubland, and tussock grassland.

Features*:

Tufts dense, harsh, 0.25-1.00 m tall, light green, dark green, red-green or orange. Culms 0.5-2.0 mm diameter, trigonous or subtrigonous, smooth or occasionally slightly scabrid towards inflorescence; basal sheaths dark brown, red-, yellow-, or grey-brown, nerves \pm distinct. Leaves numerous, $>$ culms, 1.5-2.5 mm wide, channelled, margins closely scabrid. Spikes 4-8, upper approximate, \pm sessile, lower 1-3 usually more distant, shortly pedunculate, erect; terminal spike male, occasionally with female flowers intermixed, remaining spikes female, often male at base; lower spikes 10-40 \times 4-6 mm, upper spikes progressively smaller. Glumes \pm = or slightly $<$ utricles, orbicular-ovate, obtuse, membranous, creamy brown or darker flecked, midrib light brown, 3-nerved, not reaching margin or in some glumes produced to a very short mucro. Utricles 2.0-2.8 \times c. 1.5 mm, crowded on spike, spreading when ripe, unequally biconvex or almost plano-convex, elliptic-ovoid, yellow-brown at base, upper half with darker red-brown markings and us. scabrid margins, shining, smooth, abruptly narrowed to a small cream bifid beak c.0.2 mm. long, margins and orifice faintly scabrid. Stigmas 2. Nut slightly $>$ 1 mm long, biconvex, ellipsoid, cream at first, later very dark brown

Flowering:

October - December

Fruiting:

Throughout the year

Threats:

Not Threatened

*Attribution:

Fact Sheet prepared by P.J. de Lange (10 August 2006). Description adapted from Moore and Edgar (1970)

References and further reading:

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

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

For more information, visit:

http://nzpcn.org.nz/flora_details.asp?ID=1428



Caption: Lake Westmere, Whanganui. Feb 2013

Photographer: Colin Ogle



Caption: Female and male (top of stem) heads. Lake Westmere, Whanganui. Feb 2013.

Photographer: Colin Ogle

Carex dissita

Common Name(s):

Forest Sedge

Current Threat Status (2012):

Not Threatened

Distribution:

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

Habitat:

Lowland to montane. Usually in riparian forest, where it may be abundant along stream sides.

Features*:

Shortly rhizomatous; green leafy tufts, drooping above, 0.15-1.00 m high. Culms 0.5-1.5(-1.7) mm diameter, trigonous, striated, edges smooth; basal sheaths light brown, grey-brown or often dark red-purple. Leaves > or < culms, 1.5-5.0 mm wide, double-folded, bright green or yellow-green, or red-green with red margins and midvein red abaxially, margins finely scabrid. Spikes 4-8; terminal spike male, rarely with a few female flowers at the top or with 1-2 very small male spikes at the base; remaining spikes female, usually with a few male flowers at the base, more rarely male at the top, 5-30 × 4-6 mm, uppermost spikes erect on very short peduncles, ± distant, lowest spike often quite remote and drooping from a slender peduncle. Glumes (excluding awn) slightly < utricles, ovate, emarginate to almost entire, pale reddish green or light brown, to dark red-brown with paler margins, membranous, midrib broad, pale brown, occasionally bright red-purple or straw-coloured, with 3 distinct, almost white, nerves produced to a usually short scabrid mucro. Utricles 2.0-3.0 × c. 1.5 mm, biconvex, turgid, ovoid, yellow-brown or cream at the base, red-purple to almost black above, abaxial face usually lighter coloured and more distinctly nerved than the other, margins occasionally very finely scabrid below the beak; beak c. 0.5 mm long, almost white, deeply bifid with divergent crura, orifice scabrid; stipe c. 0.3 mm. long. Stigmas 3. Nut c. 1.5 mm long, trigonous, ovoid, light brown.

Flowering:

August - November

Fruiting:

October - May

Threats:

Not Threatened

***Attribution:**

Fact Sheet prepared by P.J. de Lange (10 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.

For more information, visit:

http://nzpcn.org.nz/flora_details.asp?ID=1405



Caption: *Carex dissita*

Photographer: Wayne Bennett



Caption: Coromandel, February

Photographer: John Smith-Dodsworth

Carex flagellifera

Common Name(s):

Glen Murray tussock, Trip Me Up

Current Threat Status (2012):

Not Threatened

Distribution:

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

Habitat:

Coastal to montane. Usually in free draining soils under scrub or open forest. Rarely in wetlands or in permanently damp, shaded sites.

Features*:

Usually densely tufted, dark green, yellow-green to red-green plants. Culms 350-750(-900) × 0.5-1.0 mm, or slightly wider, close-packed, trigonous or subtrigonous, smooth or slightly scabrid for a short distance below inflorescence, usually elongating in fruit up to c. 2.8 m, initially erect, soon prostrate and long trailing; basal sheaths dark brown, occasionally tinged with red-purple, nerves ± distinct. Leaves numerous, usually > culms, 1.5-2.5(-4.0) mm. wide, bright shining green, yellow-green or reddish, spreading or drooping at the tips, channelled, margins sharply scabrid. Spikes 4-8; terminal 1-2(-3) spikes male, close together, slender; remaining spikes female, 15-30(-40) × 3-5 mm, usually distant, usually pedunculate but ± erect, often male at the base, rarely male at the top also. Glumes ± = utricles, broadly ovate, usually obtuse, often with fimbriate margins, occasionally almost emarginate, subcoriaceous, dark or light red-brown, occasionally distinctly nerved, midrib distinct and thickened, conspicuously light brown, almost cream, produced to a short, slightly scabrid awn. Utricles 2.0-2.5(-3.0) × c. 1.5 mm, unequally biconvex, almost plano-convex, elliptic-ovoid, light brown at base, usually dark brown towards the top, smooth and shining, or faintly nerved on the more convex face, margins glabrous, rarely very slightly scabrid below beak; beak c. 0.4 mm long, acutely bidentate, margins slightly scabrid; stipe c. 0.3 mm. long. Stigmas 2. Nut < 1.5 mm long, biconvex, ovoid-oblong, dark brown.

Flowering:

September - November

Fruiting:

Throughout the year

Threats:

Not Threatened

*Attribution:

Fact Sheet prepared by P.J. de Lange (10 August 2006). Description adapted from Moore and Edgar (1970)

References and further reading:

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

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

For more information, visit:

http://nzpcn.org.nz/flora_details.asp?ID=1406



Caption: Transverse section of leaf. Palliser Bay. Feb 2011.

Photographer: Jeremy Rolfe



Caption: In cultivation. Dec 2007.

Photographer: Jeremy Rolfe

Carex forsteri

Common Name(s):

Forsters Sedge

Current Threat Status (2012):

Not Threatened

Distribution:

Endemic. New Zealand: North and South Islands. In the North Island common south of Auckland, in the South Island common in Marlborough Sounds and on Banks Peninsula, otherwise sporadic in its occurrences and not recorded from Westland or Fiordland.

Habitat:

Coastal to montane (rarely subalpine). Usually in dense forest within high rainfall areas where it grows in wet seepages, depressions and along stream banks. A common species of karst country where it is often very conspicuous around sinkholes (tomo) and at cave entrances. Occasionally found around seepages in tall tussock grassland

Features*:

Large leafy tufts. Culms up to 0.9 m tall, 1.0-2.5 mm diameter, trigonous, smooth or occasionally slightly scabrid below inflorescence; basal sheaths dark red-brown. Leaves much > culms, up to 1.2 m long, 3-12 mm wide, double-folded, keel and margins scabrid. Inflorescence of 4-8 spikes; terminal 1-3 spikes wholly or partly male; remaining spikes female with some male flowers at the base, 25-110 × 5-11 mm, ± distant, ± pedunculate, lowest peduncles often long and slender and spikes drooping, green to grey-green. Glumes 2-5 mm. long, lanceolate, gradually tapering to a scabrid awn, membranous, light brown, with a narrow green midrib. Utricles = or slightly > glumes, 4-5 × c.1 mm, subtrigonus, lanceolate, slightly reflexed, turgid towards the base, distinctly many-nerved, greenish brown, gradually tapering to a beak 1.5-2.0 mm long with an oblique, bifid, scabrid orifice. Stigmas 3. Nut 1.5-2.0 mm long, trigonous, elliptic-obovoid, cream to dark brown

Flowering:

September - November

Fruiting:

October - May

Threats:

Not Threatened

***Attribution:**

Fact Sheet prepared by P.J. de Lange (10 August 2006). Description adapted from Moore and Edgar (1970)

References and further reading:

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

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

For more information, visit:

http://nzpcn.org.nz/flora_details.asp?ID=1408



Caption: Porirua Scenic Reserve. Dec 2006.

Photographer: Jeremy Rolfe



Caption: Porirua Scenic Reserve. Dec 2006. Spikelet.

Photographer: Jeremy Rolfe

Carex geminata

Common Name(s):

Cutty grass, Rautahi

Current Threat Status (2012):

Not Threatened

Distribution:

Endemic. Found throughout the North, South and Stewart Islands.

Habitat:

Coastal to lower montane in freshwater wetlands, along river and stream banks, lake margins, and in damp seepages, pond margins and clearings within forest. Preferring fertile to mid-fertile wetlands.

Features*:

Rhizomatous, robust bright-green to yellow-green sedge, 0.5-1.2 m tall. Culms 1-5-3.5(-5) mm diam., triangular in cross-section, very sharply scabrid. Basal sheaths dull grey-brown or purple-brown. Leaves numerous, > culms (2-)5-9(-11), wide, double-folded, margins very scabrid. Spikes (10-)15-24, yellow-green, grass-green, or dark-green mottled red or purple, all pedunculate, pendulous, rather narrow, often twisted and "worm-like". Glumes dark red-purple, (excluding awns) more less same length as utricles, narrow-oblong, truncate or emarginate with a hispid awn of variable length. Utricles (2-)2.3-2.9(-3.5) x 1.2-1.7(-2) mm, biconvex, compressed at base, tapering evenly above, green-, red- or yellow-brown, 3-5-nerved, margins glabrous, beak minute or 0.2 mm long.

Flowering:

(September-) October-November (-December)

Fruiting:

October - March

Threats:

Not Threatened

***Attribution:**

Fact Sheet prepared by P.J. de Lange (10 August 2006). Description adapted from Moore and Edgar (1970)

References and further reading:

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

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

For more information, visit:

http://nzpcn.org.nz/flora_details.asp?ID=1409



Caption: Seeds of *Carex geminata*
Photographer: Wayne Bennett



Caption: Coromandel, March - an unnamed carex allied to *C. geminata* s.s.
Photographer: John Smith-Dodsworth

Carex inversa

Common Name(s):

creeping lawn sedge

Current Threat Status (2012):

Not Threatened

Distribution:

Indigenous. New Zealand: North and South Islands

Habitat:

Coastal to montane - but mostly coastal to lowland. In scrub, open forest, and grassland. A common urban weed of lawns in northern New Zealand. This species has probably become more common as a result of human colonisation of the country.

Features*:

Rhizomatous, extensively creeping yellow-green to green sedge. Plants variable in size, usually flaccid, forming a matted sward. Rhizome long-creeping, to 2 mm diameter, covered by closely appressed brown scales or their fibrous remains; shoots ± distant, singly from the rhizome, c. 1 mm diameter at base including basal sheaths. Culms 20-450 × c. 0.5-1.0 mm, weak, smooth, green to yellow-green, obtusely trigonous; basal sheaths pale brown almost cream. Leaves < mature culms, 0.5-1.5 mm wide, channelled to flat, soft, grass-like, margins usually smooth or very minutely scabrid towards tip. Inflorescence a pale green or bright green ovate head, c.10 mm long, of 2-5 closely packed ± sessile spikes, or occasionally 1-2 spikes distant from the rest; bracts subtending inflorescence and lower spikes green and leafy, much longer than inflorescence. Spikes androgynous, 4-8 mm long, male flowers 1-3 at base of spikes, occasionally 0. Glumes < utricles, ovate, acuminate, white or pale brown, with a green, faintly scabrid keel. Utricles 3.0-3.5 × c.1.5 mm, plano-convex, ovoid, elliptical, distinctly nerved on convex face, light greenish brown; narrowed to a scabrid beak c.1 mm long; stipe slightly > 0.5 mm long, pale cream. Stigmas 2. Nut c.1.5 mm. long, plano-convex, broadly oblong, shortly stipitate, light to dark brown.

Flowering:

Throughout the year

Fruiting:

Throughout the year

Threats:

Not Threatened

***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.

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

For more information, visit:

http://nzpcn.org.nz/flora_details.asp?ID=2033



Caption: *Carex inversa*
Photographer: John Smith-Dodsworth



Caption: *Carex inversa*
Photographer: John Smith-Dodsworth

Carex lambertiana

Common Name(s):

Forest sedge

Current Threat Status (2012):

Not Threatened

Distribution:

Endemic. New Zealand: North and South Islands. In the North Island abundant from Te Pahi to about the southern Waikato, otherwise uncommon. In the South Island known from Nelson, Marlborough and northern Canterbury.

Habitat:

Coastal to montane. Usually in relatively open but shaded sites within tall forest or in riparian forest along riversides and on river terraces. Sometimes establishes in parks within urban areas

Features*:

Tufts robust, leafy, 0.6–1.0 m tall. Culms 1–2 mm diameter, trigonous, smooth; basal sheaths dark grey-brown or purple-black. Leaves \pm = culms, 3–6 mm wide, double-folded, bright green or yellow-green, margins finely scabrid. Spikes 5–8; terminal 1(-3) spikes male; remaining spikes female, often male at the base, 15-50 \times 5-7 mm, cylindrical, uppermost spikes approximate and sessile, lower spikes more distant, erect, on short, stiff peduncles. Glumes (excluding awn) \pm = utricles, ovate, pinkish brown to chestnut-brown, membranous, hyaline margins often very broad, tip deeply emarginate, the light green or brown midrib produced to a scabrid awn. Utricles 2.5–3.5 \times c.1.5 mm, biconvex, obovoid, turgid, usually dark brown to almost purple-black throughout with distinct, paler brown nerves, shining; beak slightly < 1 mm long, bifid, with very divergent crura, margins and orifice scabrid. Stigmas 3. Nut c.1.5 mm long, trigonous, light to dark brown, surface minutely pitted.

Flowering:

September - December

Fruiting:

Throughout the year

Threats:

Not Threatened

*Attribution:

Fact Sheet prepared by P.J. de Lange (31 August 2006): Description adapted from Moore and Edgar (1970) - see also de Lange et al. (2010).

References and further reading:

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

For more information, visit:

http://nzpcn.org.nz/flora_details.asp?ID=1411



Caption: Utricles. North Cape. Feb 2011.

Photographer: Jeremy Rolfe



Caption: North Cape. Feb 2011.

Photographer: Jeremy Rolfe

Carex maorica

Common Name(s):

Maori Sedge

Current Threat Status (2012):

Not Threatened

Distribution:

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

Habitat:

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

Features*:

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

Flowering:

October - December

Fruiting:

November - May

Threats:

Not Threatened

*Attribution:

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

References and further reading:

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

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

For more information, visit:

http://nzpcn.org.nz/flora_details.asp?ID=1414



Caption: Lake Westmere, Whanganui. Feb 2013.

Photographer: Colin Ogle



Caption: Lake Westmere, Whanganui. Feb 2013.

Photographer: Colin Ogle

Carex raoulii

Common Name(s):

Coastal forest sedge, Raoul's sedge

Current Threat Status (2012):

Not Threatened

Distribution:

Endemic. North and South Islands. Exact distribution uncertain.

Habitat:

Sedge of coastal and lowland shrublands.

Features*:

Densely tufted, tussock-forming, dark-yellow green/wine-red sedge. Culms 50-90cm × 0.5-1mm, 3-angled (trigonous), scabrid below inflorescence, greatly elongating at maturity, sometimes 3 m long. Basal sheaths dark grey-brown. Leaves < culms 2-4 mm wide, double-folded, soft, grassy, margins finely scabrid. Inflorescence of 5-7 unstalked, closely, clustered 1-4 cm × 4-7 mm spikes, arranged at top of culm, proximal portion of terminal spike female, basally male, remaining spikes all female. Glumes (excluding awn) = or < utricles, very broadly ovate, apex often cleft, membranous, colourless with few small red brown lines, pale cream midrib extending beyond to form finely scabrid awn. Utricles 2-3 × 1.5 mm, Plano-convex, elliptic-obovoid, light reddish brown, usually with distinct pale brown nerves, slightly winged, usually scabrid on margins, and on both surfaces of upper half. Beak 0.5-1 mm long, bifid, orifice finely scabrid. Stigmas 2. Nut c.1.5 mm, biconvex, obovoid, light to dark brown.

Flowering:

No information available

Fruiting:

No information available

Threats:

Because of frequent confusion with the somewhat similar *Carex* 'raotest' the exact distribution and status of *Carex raoulii* is unclear. It is certainly less common than indicated by Flora 2, which included the very common *C.* 'raotest' within *C. raoulii*. Present indications are that *C. raoulii* might be rather uncommon.

*Attribution:

Fact Sheet prepared by P.J. de Lange (10 August 2006). Description adapted from Moore and Edgar (1970)

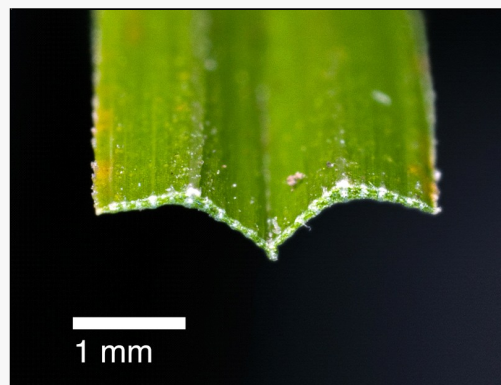
References and further reading:

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

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

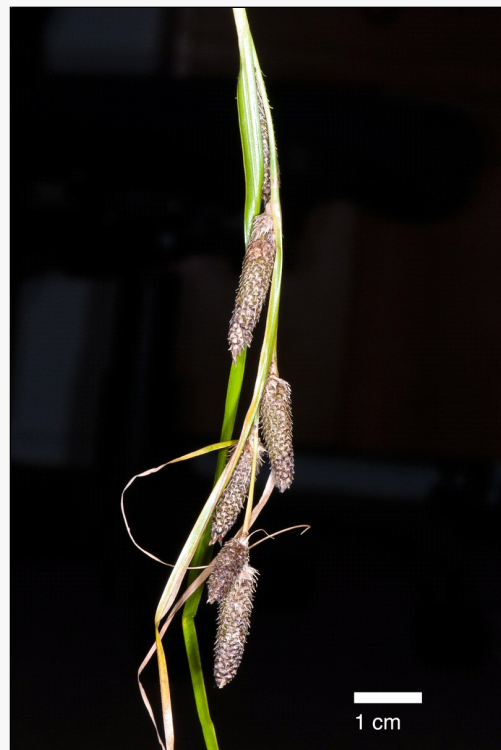
For more information, visit:

http://nzpcn.org.nz/flora_details.asp?ID=737



Caption: Transverse section of leaf. Palliser Bay. Feb 2011.

Photographer: Jeremy Rolfe



Caption: Spikelets. Palliser Bay. Feb 2011.

Photographer: Jeremy Rolfe

Carex secta

Common Name(s):

Purei, Pukio, Niggerhead

Current Threat Status (2012):

Not Threatened

Distribution:

Endemic. Found throughout the North, South and Stewart Islands. Also on the main Chatham Island, though scarce.

Habitat:

Widespread in suitable wetlands from coastal to montane wetlands.

Features*:

Tussock forming sedge up to 1.5 x 0.8 m, mature specimens with trunk-like bases comprised of matted rhizomes, roots and old culm-bases. Culms 0.25-1(-1.5) m, drooping, trigonous, scabrid, basal sheaths brown to light-brown. Leaves 1.5-7 mm wide, light green to yellow-green (rarely dark green - then in heavy shade), equal to or longer than culms, drooping, channelled, margins and keel scabrid. Inflorescence a loosely branched, somewhat slender, drooping panicle 0.45-1 m long. Spikes pale brown, mostly clustered towards the ends of the slender branchlets. Utricles chestnut brown to dark brown, margins weakly winged, scabrid, light brown to brown, apex with a minute to distinct beak.

Flowering:

(September-) October-November (-December)

Fruiting:

October - March

Threats:

Not Threatened.

***Attribution:**

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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

For more information, visit:

http://nzpcn.org.nz/flora_details.asp?ID=1418



Caption: Carex secta

Photographer: Wayne Bennett



Caption: Carex secta (Purei)

Photographer: Wayne Bennett

Carex solandri

Common Name(s):

Forest Sedge, Solander's Sedge

Current Threat Status (2012):

Not Threatened

Distribution:

Endemic. North, South and Stewart Islands

Habitat:

Coastal to montane. Usually in riparian forest where it may be the dominant sedge of alluvial terraces, and riversides but also colonising wet seepages and slip scars. Usually found in association with *C. dissita* Boott.

Features*:

Dense yellow-green tufts, upper part of leaves and culms drooping. Culms 0.10–1.00 m long, c.1 mm diameter, trigonous, smooth; basal sheaths red-brown, red-purple to black. Leaves < or = culms, 1.5–6.5 mm wide, linear, double-folded, cartilaginous. Inflorescence of 5–10 distant spikes 10–50 mm long, nodding on long filiform peduncles; terminal 1–4 spikes male, slender, usually approximate; remaining spikes female with a few male flowers above or below, 3–4 mm diameter, usually almost black, lowermost spikes often compound; subtending bracts leafy, > inflorescence. Glumes (excluding awn) ± = or < utricles, ovate, lanceolate, entire or rarely emarginate, light or dark brown, membranous, midrib produced to a scabrid awn of varying length. Utricles 2–3 mm long, slightly > 1 mm diameter, plano-convex, unequally biconvex or subtrigonous, fusiform or ovoid, turgid, dark red-brown to almost black, occasionally light brown, pale yellow towards the base, surface smooth, occasionally faintly nerved at the base, shining; scarcely narrowed above to a bidentate beak < 0.5 mm. long, margins smooth or occasionally scabrid, orifice us. scabrid; rarely contracted to a stipe c.0.2 mm. long. Stigmas 3. Nut c.1 mm. long, trigonous, obovoid, cream, surface minutely but deeply pitted giving angles of nut a serrate appearance.

Flowering:

August - December

Fruiting:

October - May

Threats:

Not Threatened

*Attribution:

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References and further reading:

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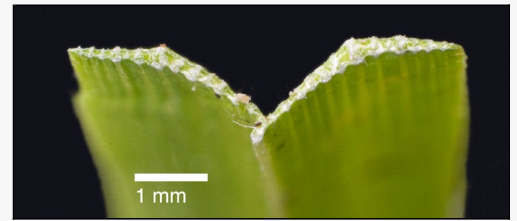
For more information, visit:

http://nzpcn.org.nz/flora_details.asp?ID=1420



Caption: Glumes. North Cape. Feb 2011.

Photographer: Jeremy Rolfe



Caption: Transverse section of leaf. North Cape. Feb 2011.

Photographer: Jeremy Rolfe

Carex spirostris

Common Name(s):

Coastal Sedge, Petrel Scrub Sedge

Current Threat Status (2012):

Not Threatened

Distribution:

Endemic. North Island from Te Pahi south to the Horowhenua and Wairarapa. Most common in northern part of range, particularly along the coast and on many of the Hauraki Gulf islands.

Habitat:

Favouring coastal to lowland forest, usually in semi-shaded sites on banks, colluvium or gently sloping sites overlying free draining, fertile soils. Also a conspicuous sedge of offshore islands in the Hauraki Gulf where it is one of the main species found under forest within petrel colonies.

Features*:

Densely caespitose, tufted, dark green sedge of high fertility sites in shaded coastal forest, lowland forest and forested offshore islands (especially within petrel colonies). Culms 0.1-1.2 m x 1.5-2 mm; basal sheaths dark red-purple. Leaves equal to or greater than culms, 2.5-6 mm wide, double-folded, with keel and margins distinctly scabrid. Inflorescence of 4-6-8 spikes; terminal spike male, often compound, with female flowers intermixed in the secondary spikes; remaining spikes female with a few male flowers at the base, equal to or slightly longer than male spikes, 15-85(-100) x 3-4 mm, uppermost spikes closely set, shortly pedunculate, lowermost spikes rather distant, drooping on slender filiform peduncles; subtending bracts leaf-like, much longer than inflorescence, almost the same width as foliage leaves. Glumes equal to or slightly than utricles in length, bright red-purple, rather membranous, deciduous, lanceolate, subacute to almost emarginated, midrib extended as a long scabrid awn. Utricles 3-4 x 1 mm, triquetrous, fusiform, conspicuously ribbed with pale veins, margins smooth, pale grey below, above bright red and narrowed (often rather abruptly) to a 1.5 mm long beak; crura scabrid; stipe 0.5 mm long. Stigmas 3. Nut 2 mm long, yellow, yellow-brown or rarely light brown, oblong, trigonous.

Flowering:

August - October

Fruiting:

September - March

Threats:

Not Threatened

*Attribution:

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References and further reading:

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For more information, visit:

http://nzpcn.org.nz/flora_details.asp?ID=1421



Caption: North Cape. Feb 2011.

Photographer: Jeremy Rolfe



Caption: North Cape. Feb 2011.

Photographer: Jeremy Rolfe

Carex virgata

Common Name(s):

swamp sedge, pukio, toitoi, toetoe

Current Threat Status (2012):

Not Threatened

Distribution:

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

Habitat:

Widespread from sea level to about 1000 m a.s.l. in open, swampy conditions and also in damp sites within lowland forest. In parts of the country this sedge is often the dominant carice of lowland alluvial forest.

Features*:

Rhizomatous, densely clumped to tussock-forming sedge. Rhizome 5 mm. diameter. Culms 150–900 mm. x c.1.5 mm, trigonous, grooved, harshly scabrid; basal sheaths shining, grey-brown to dark brown, sometimes black. Lvs much > culms, 0.5–1.2 m tall, 1.5–4.5 mm wide, channelled, light green, harsh and rigid, keel and margins strongly scabrid. Inflorescence a narrow 100–260 mm long panicle with stiff erect branchlets, the lower-most quite distant. Spikes, androgynous, 4–6 mm. long, sessile, grey- or yellow-brown, male flowers terminal, lower spikes on each branchlet subtended by a pale membranous bract with a long scabrid awn often > spike. Glume ± = or slightly < utricles, membranous, ovate, acute, dull brown, with a prominent pale midrib, this often scabrid in lowermost glumes. Utricles 2.0–2.5 x c.1.0 mm, plano-convex, ovoid, light grey with distinct brown nerves; tapering to a brown beak c.0.5 mm long with a bifid orifice and conspicuously denticulate margins; abruptly contracted to a narrow stipe c.0.2 mm. long. Stigmas 2. Nut slightly > 1 mm. long, biconvex, ovoid, dark brown.

Flowering:

October - December

Fruiting:

December - May

Threats:

Not Threatened

***Attribution:**

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References and further reading:

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For more information, visit:

http://nzpcn.org.nz/flora_details.asp?ID=1426



Caption: Flower of *Carex virgata*
Photographer: Wayne Bennett



Caption: Flower of *Carex virgata*
Photographer: Wayne Bennett