



NZPCN Conference 2015 Field Trip Tavora



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Tavora Reserve, about 10 minutes drive from Palmerston / 40 minutes north of Dunedin was purchased by the Yellow-eyed Penguin Trust in 1993. Comprising 40 hectares in total, 28 hectares are leased for grazing, while 12 hectares of the coastal strip and the riparian area alongside Tavora creek are managed for conservation. A Department of Conservation covenant is in place over the reserve.

While it was purchased primarily for the protection of yellow-eyed penguins, the Tavora Reserve Statement of Management Intent (1996) recognises the need to foster the conservation of other species of flora and fauna native to the area. With regard to vegetation management, the 1996 plan had an objective to: "Re-establish and allow natural regeneration of coastal vegetation communities similar to that which previously existed in the area. These may include coastal forest, shrublands, wetlands, cliff and dune communities."

Shortly after the reserve was purchased restoration plantings began in the ngaio paddock at the northern end of the reserve, around the few remaining trees of the old coastal forest, such as ngaio, kowhai, narrow leaved lacebark, lowland ribbonwood and cabbage trees. Planting continues at this site, despite setbacks with frost and the ultimate aim is to extend the coastal forest from the adjacent DOC Goodwood S.R. to the sea.

At the southern end of the reserve, a particular emphasis was on the riparian plantings beside the creek (1994-95), followed by dune restoration (beginning 2001) and a totara dune forest behind (beginning 2008). Reference sites for the dune restoration in particular are scarce in East Otago, and elements of surviving dune systems in the Catlins, and particularly Sealers Bay on Whenua Hou (Codfish Island) were used to inform the Tavora restoration.

The dune restoration has been arguably the most successful of the plantings at Tavora and certainly, when viewed from Bobby's Head, the most colourful. As in most other eastern South Island sites the dunes were dominated by introduced marram grass, with few indigenous species present. The exceptions included the cushion plant (*Scleranthus biflorus*) and sand convolvulus (*Calystegia soldanella*).

A variety of techniques were employed to replace the marram with pingao/pikao (*Ficinia spiralis*), the dominant native sand binding species. These techniques included spraying with herbicide, placing carpets to suppress the marram prior to planting, mechanical removal with a tractor raking out the marram, and taking advantage in the early days of large storm events that flattened the marram dunes and covered large areas with seaweed. In new planting areas with few other desirable plants, a Roundup / Codicide herbicide mix is used.

Once established the pingao/pikao plantings are easily maintained with back packs or hand weeding if volunteers are available. Grass specific herbicides, such as Gallant are used, which allow quick overspraying of both the target and desirable plants. Care is taken to avoid overspray of sand tussock. Native sand binders and dune plants were sourced from within the ecological district if possible, but in the case of sand tussock (*Poa billardierei*), no sources were found locally and seed was obtained from plants at Oreti Beach in Southland.

Sand coprosma (*Coprosma acerosa*) was sourced from Andersons Lagoon, just north of Tavora, while Cook's scurvy grass (*Lepidium juvencum*) came from the Otago Peninsula. Sea spurge (*Euphorbia glauca*) was grown from cuttings sourced from Katiki Beach / North Otago. While debate currently swirls around the possible role of spinifex in southern South Island dune restoration, the Trust is maintaining a watching brief on trials being conducted by Dunedin City Council.

Limited room exists for further plantings of pingao, sand tussock and *Euphorbia glauca*, and the new emphasis will be on connecting these dune plants with the shrubby species in the back dunes and ultimately a totara community on the dune ridge.

Aciphylla subflabellata

Common Name(s):

Spaniard

Current Threat Status (2012):

At Risk - Declining

Distribution:

Endemic. South Island in the east from south-eastern Marlborough to Southland

Habitat:

Montane to subalpine (300-1400 m a.s.l.). Usually in dry sites on alluvial terraces, gentle rolling slopes and colluvium, intermontane basins amongst short or tall tussocks and on the margins of grey scrub. Sometimes on or near rock outcrops or amongst boulders.

Features*:

Stout perennial forming stout rosettes. Stems up to 0.8 m long. Leaves yellow-green to grey-green, narrowly subflabellate-bipinnate. Sheaths membranous, up to 20 mm long, ligules 2, up to 10 mm long; stipules 20 mm long, irregularly bipinnate. Petioles 25 x 5 mm, concavo-convex with internodes up to 25 mm long. Primary pinnae 3-4 pairs, these strongly serrulate-crenulate on midrib and margins, sometimes pinnate again with leaflets up to 200 x 3 mm, narrowly acicular. Stems stout, deeply grooved up to 1 m x 25 mm, including inflorescence 0.5-0.6 m long. Bracts numerous, close-set; sheaths up to 70 x 10 mm; stipules erect, simple to bifid, up to 150 x 1 mm; central leaflet up to 300 mm long, at length strongly reflexed, margins serrulate. Umbels exceeding the bract-sheaths especially in the male inflorescence. Mericarps 5-12 mm long with 5 ribs, 3-4 of these winged.

Flowering:

December - February

Fruiting:

February - May

Threats:

Widespread but generally never common. Possibly it is more threatened than believed because many of its lowland habitats are extremely modified, weed infested and plants are browsed where accessible by cattle, rabbits and hares. Current herbarium evidence suggests that this species is still poorly known but that from available evidence it is naturally uncommon over large parts of its stated range.

*Attribution:

Fact sheet prepared for NZPCN by P.J. de Lange (1 September 2004). Description based on Allan 91961).

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=215



Caption: Mossburn, Southland
Photographer: Gillian Crowcroft



Caption: Upper Clarence, Near Hamner
Photographer: Gillian Crowcroft

Bolboschoenus caldwellii

Common Name(s):

Purua grass, Caldwell's clubrush

Current Threat Status (2012):

Not Threatened

Distribution:

Indigenous. North Island from the Kaipara Harbour south, and mainly easterly. In the South Island widespread from Nelson to Otago, mainly eastern. Also in Australia.

Habitat:

Coastal to lowland in saltmarshes and other poorly drained saline areas. Sometimes invades pasture abutting tidal streams and estuaries.

Features*:

Summer-green, bulbous perennial forming mostly densely clumped patches. Rhizome 3-5 mm diameter, horizontal, long-creeping, brown, apices terminated by globose, ligneous tubers. Culms 1(-3) per tuber, 0.3-1.0 m tall, 2-3 mm diameter, triquetrous; basal sheaths 1-2, mostly membranous, with a short channelled lamina. Leaves numerous, <, equal to, or > culms, 200-320 x 2.5-4.0 mm, double-folded but flattened, grass-like, tapering, coriaceous, margins and midrib scabrid towards apices; sheaths short, closed, coriaceous. Inflorescence a terminal, compact head of 3-6 spikelets; rays if present 1-3, 10-40 mm long, unequal, subtending involucre bracts similar to leaves, > inflorescence, unequal, 40-220 x 1.5-2.5 mm. Spikelets 10-20 mm long, ovoid or cylindrical, red-brown. Glumes membranous, pubescent, apices slightly cleft or lacerate, with a scabrid, slightly recurved awn. Hypogynous bristles 6, unequal, about half length of nut, deciduous, red-brown, retrorsely scabrid. Stamens 3. Style-branches 2. Nut 3.5-4.0 x 2.5 mm, biconvex or obovoid, compressed, with a small depression on each side, smooth, apiculate, maturing cream to dull brown and glossy.

Flowering:

October - January

Fruiting:

December - May

Threats:

Not Threatened but uncommon in northern part of range

*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

For more information, visit:

http://nzpcn.org.nz/flora_details.asp?ID=2074



Caption: Winter foliage. Kai-iwi Stream mouth. Apr 2011.

Photographer: Colin Ogle



Caption: Exposed tubers. Kai-iwi stream mouth. Apr 2011.

Photographer: Colin Ogle

Calystegia soldanella

Common Name(s):

shore bindweed, shore Convolvulus, rauparaha

Current Threat Status (2012):

Not Threatened

Distribution:

Indigenous. Kermadec, Three Kings, North, South, Stewart and Chatham Islands. Indigenous to both Northern and Southern Hemisphere temperate regions.

Habitat:

Coastal or inland along lake shorelines. Usually in sand or shell banks but also grows in fine gravel or pumice, talus slopes and on occasion in coastal turf or on cliff faces.

Features*:

Perennial herb with stout, white, deeply descending, fleshy roots and numerous prostrate branching stems forming dense patches. Stems glabrous. Petioles 80 mm or less, slender. Leaves (10-)50(-80) x (10-)50(-75) mm, reniform, fleshy, glossy, entire; sinus shallow and rounded; apex emarginate, obtuse or acute. Flowers solitary; peduncles ribbed, 100 mm long. Bracts ovate, cordate, obtuse 12-18 mm long. Sepals nearly = bracts, obtuse. Corolla 20-40 x 25-50 mm, campanulate, pink with white mid-petaline bands. Capsule 15-20 mm long, broad-ovoid, apiculate. Seeds dark brown, smooth.

Flowering:

August-March

Fruiting:

Present throughout the year

Threats:

Not Threatened

*Attribution:

Fact sheet prepared for NZPCN by P.J. de Lange 1 November 2005. Description adapted from Allan (1961) and Webb et al. (1988), supplemented with observations made from fresh and dried material.

References and further reading:

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

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.; 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..

For more information, visit:

http://nzpcn.org.nz/flora_details.asp?ID=2080



Caption: Fortrose Spit

Photographer: John Barkla



Caption: Macauley Island

Photographer: John Barkla

Coprosma acerosa

Common Name(s):

sand Coprosma

Current Threat Status (2012):

At Risk - Declining

Distribution:

Endemic. North, South, Stewart and Chatham Islands

Threats:

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

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=1699



Caption: *Coprosma acerosa*

Photographer: Wayne Bennett



Caption: Closeup of *Coprosma acerosa*

Photographer: Wayne Bennett

Euphorbia glauca

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



Caption: *Euphorbia glauca* at Ninety Mile Beach

Photographer: Bill Campbell



Caption: Mana Island

Photographer: John Sawyer

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.

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



Caption: Kaingaroa, Chatham Island. Jun 2013.

Photographer: Jeremy Rolfe



Caption: Mangawhai Wildlife Reserve, north of Auckland

Photographer: John Sawyer

Lepidium juvencum

Common Name(s):

scurvy grass

Current Threat Status (2012):

Nationally Critical

Distribution:

Endemic. New Zealand. South Island (known from a few site near Dunedin and from Stewart island (and possibly adjoining smaller islands))

Features*:

Tap-rooted, strongly pungent smelling, perennial herb. Growth habit open, straggly, up to 50 cm tall. Stems usually decumbent to sprawling, slender, flexible, sparse; mature stems woody, 100–1000 × 8–12 mm, often devoid of foliage on middle and lower parts of stems; new stems 100–400 × 3–4 mm, leafy, glabrous. Leaves glabrous, subcoriaceous, green, often undulate, rosette and stem leaves usually withering, variable in size and shape. Leaves of young and vigorous plants and stems: lamina 37–87 × 12–32 mm, elliptic, obovate or elliptic-oblongate; apex truncate to obtuse, usually with 2–3 prominent teeth and often appearing irregular; margin singly crenate, with 4–19 pairs of teeth; teeth up to 1.5 mm deep, not overlapping; base attenuate to cuneate, tapering to a distinct or indistinct petiole; petiole up to 23.0 × 2.0–5.0 mm, or sessile. Leaves of mature plants and cauline stems: lamina 10–60 × 3–21 mm, elliptic, elliptic-oblongate, obovate to elliptic-obovate; apex subacute, truncate or obtuse, usually with 2–3 prominent teeth and often appearing irregular; margin singly crenate in upper and/or lower half, with 4–19 pairs of teeth; teeth up to 1.3 mm deep, not overlapping; base attenuate to cuneate, tapering to distinct or indistinct petiole, or sessile. Inflorescence terminal and lateral, racemose, 10–60 mm long, rachis 1.0–1.3 mm diameter, glabrous; pedicels 4.0–6.0 mm long, erecto-patent, usually glabrous although lower pedicels occasionally sparsely hairy on adaxial surface. Flowers 4.0–5.0 mm diameter. Sepals 4, 1.3–1.5 mm long, saccate, overlapping at base, green, apex obtuse, margin white, shape dimorphic; lateral sepals broad, 1.1–1.5 mm diameter, orbicular, abaxial surface often hairy, hairs 0.1–0.5 mm long; median sepals narrow, 0.9–1.2 mm diameter, broadly elliptic, glabrous. Petals white, 2.0–2.4 × 1.1–1.5 mm, spreading, claw 0.6–1.0 mm long; limb broadly elliptic to orbicular, apex obtuse to rounded. Stamens 4(–5); filaments 1.4–1.7 mm long, base 0.3–0.5 mm diameter, equal; anthers 0.3–0.4 mm long. Ovary 1.0–1.5 × 0.9–1.4 mm, broadly ovate to broadly elliptic, green to green-brown, apex usually with shoulders; style 0.15–0.25 mm long, cylindrical; stigma 0.3–0.5 mm diameter. Nectaries 4, 0.2–0.3 × c. 0.1 mm, oblong-obovate, green. Silicles cartilaginous when fresh, coriaceous when dry, 3.1–4.2 × 2.5–3.5 mm, elliptic-rhomboid to orbicular-rhomboid, valves light brown, glabrous, apex shallowly notched, not winged; style 0.2–0.3 mm long, exserted. Seeds 1.6–1.8 × 0.9–1.3 mm, narrowly ovoid, brown to orange-brown, not winged.

Flowering:

November - May

Fruiting:

November - June

Threats:

Known from one site near Dunedin and from several offshore islands from the Otago Peninsula to Stewart Island. Not common at any site. Historically more wide ranging (as evidenced from herbarium specimens). Most populations are very small (< 10 plants) and one is threatened by trampling.

*Attribution:

P.J. de Lange (7 September 2013). Description from de Lange et al. (2013) - see references for free download link for that paper.

References and further reading:

de Lange, P.J.; Heenan, P.B.; Houliston, G.; Rolfe, J.R.; Mitchell, A.D. 2013: *New Lepidium* (Brassicaceae) from New Zealand. *Phytokeys* 24:1-147pp. , doi: 10.3897/phytokeys.24.4375.

For more information, visit:

http://nzpcn.org.nz/flora_details.asp?ID=7599



Caption: Herekopere. Jan 2005.

Photographer: Peter Heenan



Caption: Flowering stem of *Lepidium juvencum* showing multiple inflorescences and trailing growth habit.

Photographer: Peter Heenan

Plagianthus divaricatus

Common Name(s):

Salt marsh ribbonwood, marsh ribbonwood

Current Threat Status (2012):

Not Threatened

Threats:

Not Threatened

For more information, visit:

http://nzpcn.org.nz/flora_details.asp?ID=1141



Caption: *Plagianthus divaricatus*

Photographer: Wayne Bennett



Caption: Meola Reef, Westmere, Auckland

Photographer: John Sawyer

Poa billardierei

Common Name(s):

Sand tussock, hinarepe

Current Threat Status (2012):

At Risk - Declining

Distribution:

North Island, South Island, Chatham Island (apparently absent from Chatham Island now despite being formerly abundant). Also found in temperate Australia.

Habitat:

Coastal dunes; sandy and rocky places near the shore, especially foredunes and dune hollows.

Features*:

Yellow-green tussocks up to about 70 cm tall. Leaves fine, rolled, somewhat drooping (coarser than silver tussock), initially green, often fading at tips to silver, and drying to golden-straw colour. Seed heads no longer than leaves; seeds relatively large, barley-like, leaving a characteristic zig-zag look to the remaining head when fallen. Flowers in early summer and the seed are produced in late summer. It could be confused with *Poa chathamica* which has blue-green or grass-green flat leaves and an open seed head which overtops the foliage. It could also be confused with marram grass which has similar foliage but large cat's tail-like seed heads which overtop the foliage.

Flowering:

Early summer

Fruiting:

Mid to late summer

Threats:

Mammalian grazing and browsing (palatable to sheep, cattle, goats and horses). Competition from marram grass. Coastal development and use of vehicles. The combined impact of browsing and competition from marram grass is believed to have caused the loss of the species from the Chatham Islands.

*Attribution:

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

References and further reading:

Cameron, E.K. 1991. *Austrofestuca* an extinct addition to the Waitakere Flora. *Auckland Botanical Society Journal*, 46: 20.

Mitcalfe, B., Horne, C. 2002. Rediscovery of a nationally rare tussock in Makara Foreshore Reserve, Owhariu Bay, Wellington. *Wellington Botanical Society Bulletin* 48: 23-24

Soreng, R.J.; Gillespie, L.J.; Jacobs, S.W.L. 2009: *Saxipoa* and *Sylvipoa* - two new genera and a new classification for Australian *Poa* (Poaceae: Poinae). *Australian Systematic Botany* 22: 401-412.

Stanley, R. 2001. Sand tussock *Austrofestuca littoralis* update on the Auckland populations. *Auckland Botanical Society Journal*, 56: 21-22

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=148



Caption: *Austrofestuca littoralis*
Photographer: Kevin Matthews



Caption: Kapowairua, Spirits Bay
Photographer: Gillian Crowcroft

Scleranthus biflorus

Common Name(s):

Canberra grass

Current Threat Status (2012):

Not Threatened

For more information, visit:

http://nzpcn.org.nz/flora_details.asp?ID=1291



Caption: Rotorua. Nov 2006.

Photographer: Ross Beever



Caption: Rotorua. Nov 2006.

Photographer: Ross Beever

Thyridia repens

Common Name(s):

Native musk, Maori musk, Native monkey flower

Current Threat Status (2012):

At Risk - Naturally Uncommon

Distribution:

Indigenous. New Zealand: North and South Islands. Also Australia

Habitat:

Strictly coastal. Usually at the back of salt marshes and estuaries, in permanently damp or soggy, saline mud or silt soils in locations that are periodically flooded during high, spring or King tides. Sometimes in dune swales. Intolerant of much competition from taller plants or faster growing mat-forming species.

Features*:

Mat-forming, succulent, perennial herb. All parts glabrous. Stems dark green to red-green, prostrate, sometimes ascending at apices, rooting at nodes. Leaves sessile, amplexicaul, c. 2-8 x 1-6 mm, dark green, brown-green to reddish-green, broadly ovate-oblong, entire, punctuate, somewhat succulent. Flowers on short, ascending branches, solitary in leaf axils; pedicels 2-8 mm long, dark green to pinkish-green. Calyx 2-7 mm long, < corolla tube, broadly funneliform; apex truncate, minutely toothed. Corolla 10-15 mm long, distinctly 2-lipped. light purple, mauve, lilac or white, red-spotted with yellow open throat; lower lip bearded; lobes shallow, broader than long. Capsule 6.5 mm long, broadly cylindrical.

Flowering:

September - February

Fruiting:

November - May

Threats:

A widespread, naturally uncommon, biologically sparse species. It is most uncommon in the northern North Island becoming progressively more abundant south of the Waikato, although it is still often absent over large parts of the country. In some parts of its range, particularly metropolitan Auckland, populations have been lost through road realignments (where they cross salt marshes e.g., the upper Waitemata Harbour) or through land reclamation. The spread of the aggressive salt grasses (*Spartina* spp.) and *Carex divisa*. is also a risk in some parts of its range. Nevertheless, these range contractions are insufficient nationally to justify an upgrade to one of the three threat categories.

*Attribution:

Fact sheet prepared for NZPCN by P.J. de Lange 8 August 2004. Description adapted from Allan (1961).

References and further reading:

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

Barker, W.R.; Nesom, G.L.; Beardsley, P.M.; Fraga, N.S. 2012: A taxonomic conspectus of Phrymaceae: A narrowed circumscriptions for *Mimulus*, new and resurrected genera, and new names and combinations. *Phytoneuron* 1-60.

Gardner, R. 1988. *Mimulus repens*. *Auckland Botanical Society Journal*, 43: 67

For more information, visit:

http://nzpcn.org.nz/flora_details.asp?ID=286



Caption: Hoopers Inlet, Otago Peninsula

Photographer: John Barkla



Caption: Tiwai Peninsula, Southland (flowers)

Photographer: Jesse Bythell

Tupeia antarctica

Common Name(s):

taapia, pirita, white mistletoe, tupia

Current Threat Status (2012):

Declining

Distribution:

Endemic to the North and South Islands.

Habitat:

Forest or scrub (often in regenerating vegetation), where it is parasitic on a wide range of hosts including tarata, karo, *Coprosma* species, putaputaweta, fivefinger, white maire and broom.

Features:

A shrubby semi-parasite to 1 m diameter. Leaves are oppositely arranged, variable in shape, 10 to 70 by 10 to 40 mm, slightly fleshy and bright green. Stems are always rounded in cross section near the tips, have pale white to grey bark, and downy or hairy branchlets. Flowers are tiny, greenish-yellow. Fruit are fleshy, white to pink, 5 to 7 mm diameter.

Flowering:

Flowers from October to December.

Fruiting:

Fruit appear from December to March.

Threats:

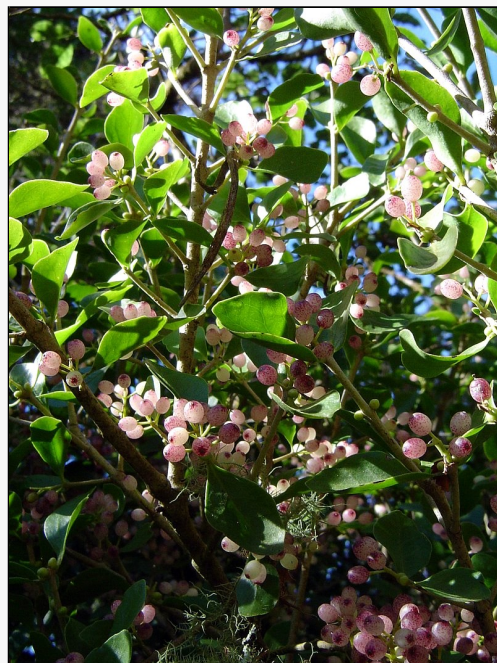
Possum browse is the primary threat to this species. Insect browse, habitat destruction, loss of pollinating and seed-dispersing native birds, collectors, vandalism and fungal disease also threaten this species.

References and further reading:

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

For more information, visit:

http://nzpcn.org.nz/flora_details.asp?ID=210



Caption: fruit on marbleleaf
Photographer: Philip Lissaman



Caption: young plant on
Plagianthus regius
Photographer: Jesse Bythell