



Aotea/Great Barrier Island Tranche 3 Collection



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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.

Kunzea linearis

Common Name(s):

rawiri manuka

Current Threat Status (2012):

At Risk - Declining

Distribution:

Endemic. New Zealand: North Island from Te Pahi to northern Waikato with on disjunct outlier in the north-eastern Wairarapa (see de Lange 2014).

Habitat:

Coastal shrublands and cliff faces, usually on sand, sand podzols, and/or sandy peats. Rarely on podzolised clays or sandstone bluffs. Occasionally found inland.

Features*:

Erect shrubs or small trees up to 12 m. Trunk 1–4), mostly erect, 0.10–0.60 m d.b.h. Bark dark brown to brown, ± elongate, coarsely tessellated usually firmly attached, though peeling inwards leaving centrally attached lunate flakes. Branches numerous; ascending to upright, plumose; branchlets plumose, slender; branchlets sericeous, indumentum copious, hairs antrorse-appressed, weakly flexuose, up to 0.68 mm long. Leaves sessile, hairy, rarely glabrous, densely crowded along branchlets toward apices; lamina 9.3–19.5 × 0.3–1.2 mm, initially silvery-grey (due to dense hair covering), maturing dark green to glaucous green above (as hairs are shed); linear, apex sharply acute, cuspidate, base attenuate; lamina margins copiously covered in silvery-grey hairs, these forming a thick band and fusing with the abaxial midrib hairs just short of lamina apex, and along decurrent leaf bases. Inflorescence spiciform 3–12-flowered botrya 20–80 mm long or an elongated, spiciform, 10–40-flowered botryum up to 180 mm long. Flowers of smaller botrya crowded, those of elongated botrya regularly spaced up to 20 mm apart; terminal portion of both short and elongated spiciform botrya inflorescence types often bearing undeveloped flowers and active vegetative growth. Inflorescence axis densely invested in antrorse-appressed, weakly flexuose, silky hairs. Pherophylls, leaf-like, 1–2 per flower, hairy (rarely glabrous); lamina 6.0–12.8 × 0.9–2.2 mm, dark silvery-green, silvery-grey or glaucous (depending on extent of hair covering), linear to linear-falcate; apex acute, base attenuate; lamina margin densely covered by antrorse-appressed, sericeous hairs, rarely glabrous. Pedicels sessile to subsessile, up to 1.2 mm long, copiously invested with silky, antrorse-appressed, weakly flexuose hairs. Flower buds ovoid, double conic to pyriform, apex sharply erect; calyx lobes pinched at base inwards, touching prior to bud burst. Flowers 1.9–5.7 mm diam. Hypanthium 2.0–4.0 × 2.5–4.1 mm, copiously covered in silvery-white to silvery-grey hairs or glabrous; barrel-shaped, cupular or narrowly campanulate, rim bearing 5 persistent sharply erect calyx lobes; hypanthium usually completely covered in a dense covering of long, silky, antrorse-appressed silvery hairs. Calyx lobes 5, erect, 1.0–1.6 × 0.2–0.6 mm, narrowly deltoid to deltoid with acute tips, red-green, densely covered in long, silky, silvery, antrorse-appressed, hairs or glabrous. Receptacle green or pink at anthesis, usually darkening to crimson after fertilisation. Petals 5–6, 0.9–2.0 × 0.7–1.9 mm, cream, pale pink or cream basally flushed pink, narrowly ovate to suborbicular, suberect, apex rounded, margins ± finely and irregularly crumpled, oil glands colourless. Stamens 32–46(–60) in 1–2 weakly defined whorls, arising from receptacular rim, filaments cream. Anthers dorsifixed, 0.04–0.06 × 0.02–0.04 mm, testiculate, latrorse. Pollen white. Anther connective gland prominent, pale pink or golden-yellow when fresh, drying yellow to pale orange, spheroidal, finely to coarsely papillate. Ovary 3–5 locular, each with 18–30 ovules in two rows on each placental lobe. Style 0.8–2.0 mm long, cream or pale pink; stigma narrowly capitate, as wide as, or slightly wider than style, ± flat, greenish-white or pink, flushing red after anthesis, surface finely granular-papillate. Fruits 1.6–2.9 × 2.3–4.1 mm, initially silvery-white or silvery-grey due to dense hair covering, maturing grey-brown to grey-black, barrel-shaped to narrowly obconic, rarely campanulate to cupular, calyx valves prominently erect. Seeds 0.50–1.10 × 0.48–0.70 mm, obovoid, oblong, oblong-ellipsoid, or cylindrical; testa semi-glossy, orange-brown to dark brown, surface coarsely reticulate.

Flowering:

October-February

Fruiting:

December-June

Threats:

Primarily threatened through loss of habitat. The preferred coastal habitat of *K. ericoides* var. *linearis* is actively threatened by coastal resort development, and farming throughout its range. Also plants are cut for firewood. Very few populations occur on protected land. Hybridism with other *Kunzea* spp. is a major problem in urban settings such as Auckland.

*Attribution:

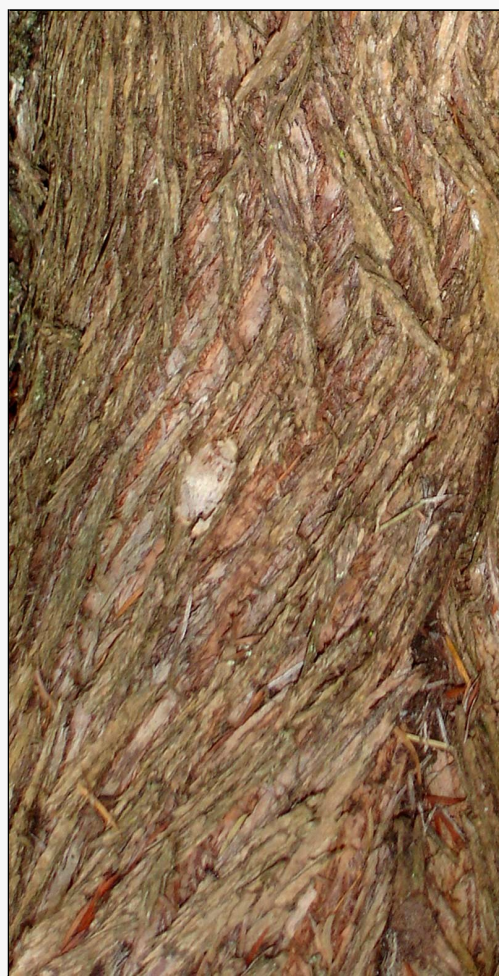
Fact Sheet prepared for NZPCN by P.J. de Lange 1 September 2014. Description modified from de Lange (2014).

References and further reading:

de Lange, P.J. 2014: *A revision of the New Zealand Kunzea ericoides* (Myrtaceae) complex. *Phytokeys* 40: 185p doi: 10.3897/phytokeys.40.7973.

For more information, visit:

http://nzpcn.org.nz/flora_details.asp?ID=130



Caption: *Kunzea ericoides* var. *linearis* bark

Photographer: Peter de Lange

Kunzea robusta

Common Name(s):

manuka, kanuka, kopuka, rawirinui, maru, manuka rauriki

Current Threat Status (2013):

Not Threatened

Distribution:

Endemic. New Zealand: North and South Islands.

Habitat:

Coastal to lowland shrubland, regenerating forest and forest margins, also present in montane forest, ultramafic shrubland and very occasionally present in subalpine shrubland (up to 900 m a.s.l.).

Features*:

Trees 8–30 m tall. Trunk 1–6, 0.10–1.0 m d.b.h. Bark stringy, or coarsely tessellated, coriaceous, firmly attached above, detaching basally, often hanging semidetached; peeling upwards along trunk in narrow to broad, tabular strips up to 4 m long. Branches initially erect, soon arching outwards and spreading; branchlets numerous, slender; sericeous, indumentum copious, hairs either long or short antrorse-appressed; if long, then weakly flexuose 0.15–0.38 mm long; if short, not flexuose, 0.09–0.15 mm long. In eastern Coromandel Peninsula and coastal East Cape to Mahia Peninsula, branchlet indumentum in mixtures of divergent 0.03–0.08 mm long hairs, and sparse, 0.1–0.2 mm long, antrorse-appressed hairs. In the Rangitikei region, branchlet hairs of seedling and juveniles divergent, short 0.04–0.10 mm long. Leaves sessile to shortly petiolate, light green or dark green above, paler beneath; oblanceolate, broadly oblanceolate, broadly lanceolate, lanceolate to linear-lanceolate, rarely elliptic to obovate; apex subacute to acute, rarely obtuse, rostrate or shortly apiculate, base attenuate to narrowly attenuate; lamina margin initially finely covered with a thin, interrupted band of spreading to antrorse-appressed hairs not or rarely meeting at apex; hairs shedding with age. Lamina of juvenile plants from coastal areas and northern North Island 14.6–28.4 × 1.6–2.5 mm; from inland areas, 3.2–6.3 × 0.7–1.5 mm; adult lamina of plants from coastal areas and northern North Island 4.9–20.1 × 0.9–3.0 mm; from inland areas, 5.8–12.3 × 1.2–2.2. Inflorescence mostly a compact corymbiform to shortly elongate 1–30-flowered botryum up to 60 mm long; extending near end of flowering season as an 4–12-flowered, elongate botryum up to 80 mm long;. Pherophylls deciduous or persistent; squamiform grading into foliose; squamiform pherophylls 0.4–1.2 × 0.3–0.6 mm, broadly to narrowly deltoid or lanceolate, apex acute, subacute to obtuse, margins finely ciliate; foliose pherophylls 6.0–17.9 × 1.1–1.8 mm, elliptic, oblanceolate, broadly lanceolate to lanceolate, apex obtuse, base attenuate; margin densely covered by antrorse-appressed hairs. Pedicels 1.2–5.2 mm long at anthesis. Flower buds pyriform to obconic, apex flat or weakly domed prior to bud burst; calyx valves not meeting. Flowers 4.3–12.0 mm diameter. Hypanthium 2.1–4.1 × 3.0–5.2 mm, broadly obconic to turbinate, sometimes cupular, rim bearing five persistent calyx lobes. Hypanthium surface when fresh faintly ribbed and sparingly dotted with pink or colourless oil glands, these drying dull yellow-brown or brown; either finely pubescent with the ribs and veins conspicuously covered in longer silky, antrorse-appressed hairs, or glabrous; hypanthium similar when dry though with the ribs more strongly defined and clearly leading up to calyx lobes. Calyx lobes 5, coriaceous, 0.52–1.1 × 0.60–1.4 mm, broadly ovate, ovate-truncate to broadly obtuse, glabrate. Receptacle green or pink at anthesis, darkening to crimson after fertilisation. Petals 5–6, 1.5–3.8 × 1.3–3.6 mm, white, rarely pink, orbicular, suborbicular to ovate, apex rounded to obtuse, oil glands colourless. Stamens 15–58 in 2 weakly defined whorls, filaments white. Anthers 0.38–0.63 × 0.18–0.32 mm, ellipsoid to ovoid-ellipsoid or deltoid. Pollen white. Anther connective gland prominent, light pink, salmon pink, yellow to orange when fresh, drying dark orange, orange-brown or dark brown, spheroidal, finely rugulose or papillate. Ovary 5–6 locular. Style 2.0–3.5 mm long at anthesis, white or pinkish-white; stigma broadly capitate, flat, greenish-white or pale pink, flushing red after anthesis. Fruits 2.2–4.6 × 3.2–5.3 mm, maturing greyish white, obconic, broadly obconic to ± turbinate, rarely cupular; hairy, (rarely glabrous). Seeds 0.9–1.1 × 0.35–0.48 mm, oblong, oblong-obovate, oblong-elliptic; testa semi-glossy, orange-brown to dark brown, surface coarsely reticulate.

Flowering:

August–June

Fruiting:

Jul–May

Threats:

Not Threatened.

*Attribution:

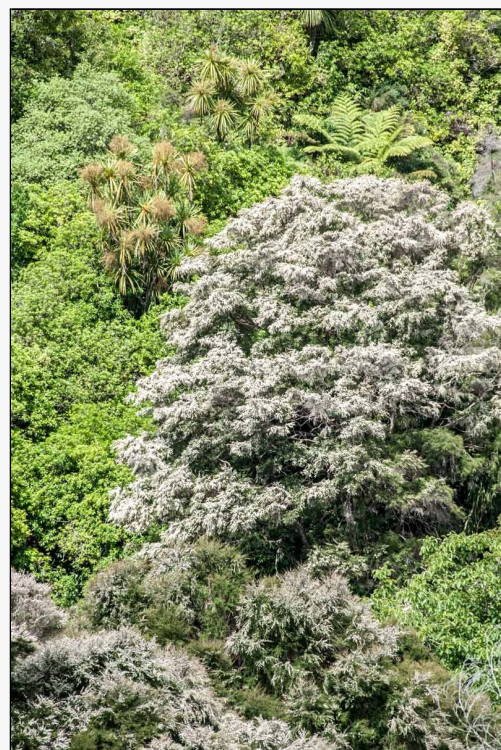
Fact Sheet prepared for NZPCN by P.J. de Lange 10 September 2014. Description modified from de Lange (2014).

References and further reading:

de Lange, P.J. 2014: *A revision of the New Zealand *Kunzea ericoides* (Myrtaceae) complex*. *Phytokeys* 40: 185p doi: 10.3897/phytokeys.40.7973.

For more information, visit:

http://nzpcn.org.nz/flora_details.asp?ID=7644



Caption: Mohaka River viaduct.
Photographer: Jeremy Rolfe

Kunzea sinclairii

Common Name(s):

Great Barrier Island kanuka

Current Threat Status (2012):

At Risk - Naturally Uncommon

Distribution:

Endemic. New Zealand: Aotea Island / Great Barrier Island, where it is only known from the central portion of the island (de Lange & Norton 2004).

Habitat:

Rhyolite endemic, largely confined to exposed outcrops of this rock on the central portion of the island but also extending down gorges and in open clay pans and low windswept scrub in places formerly forested (see de Lange & Norton 2004).

Features*:

Mostly decumbent, trailing, silvery grey to grey, shrubs up to 3 × 1 m, very rarely forming trees up to 6 m tall; irrespective of stature, branches widely spreading and densely leafy, sometimes rooting on contact with soil or rock. Trunk 1–4, 0.05–0.16 m d.b.h. Bark dark brown to grey-brown, coarsely stringy to tessellated and distinctly corky-coriaceous, usually firmly attached, if detaching, then usually doing so along transverse cracks. Branches numerous, prostrate and widely spreading, new growth subscentent (in tree forms this habit is retained resulting in arching, pendulous branches); branchlets numerous, widely spreading to subscentent, often coarsely interwoven, leaves usually densely crowded along stems; branchlets sericeous, indumentum copious, silky, hairs antrorse-appressed, weakly flexuose up to 0.06 mm long. Leaves heterophyllous, mostly sessile, sometimes shortly petiolate (up to 1.6 mm long). Seedling and juvenile leaves dark green to glaucous, glabrous up to 25.0 × 3.5 mm, oblanceolate to lanceolate, apex acute, base attenuate. Mature leaf lamina 5.6–20.6 × 2.0–4.5 mm, initially silvery-white (due to dense hair covering), maturing silvery-grey to reddish grey (as some hairs are shed); lamina broadly lanceolate, elliptic to obovate, rarely oblong-obovate, apex sharply acute, often cuspidate, base attenuate; hairs of midribs and margins converging at leaf apex. Inflorescence a compact, corymbiform 4–20-flowered botryum 7.0–20.0 mm long; on occasion inflorescences may form elongated botrya on late season vegetative growth. Inflorescence axis densely invested with antrorse-appressed, weakly flexuose, silky hairs. Pherophylls deciduous, rarely present at flowering; foliose pherophylls 1.0–1.2 × 0.2–0.4 mm, oblong to oblong-lanceolate, very rarely broadly spatulate, cuspidate, copiously invested in sericeous, antrorse-appressed hairs; squamiform pherophylls 0.3–1.0 × 0.4–0.8 mm, broadly to narrowly ovate or lanceolate, apex acute, subacute to obtuse, margins finely ciliate. Pedicels 2.8–7.3 mm long, invested with silky, antrorse-appressed, weakly flexuose, hairs becoming glabrate. Flower buds 2.3–4.9 × 2.1–4.2 mm, ovoid to pyriform, apex flat to weakly domed prior to bud burst with calyx lobes held flat across surface, rarely meeting. Flowers 5.7–10.2 mm diameter. Hypanthium 1.9–3.6 × 2.1–4.2 mm, silvery-white to silvery grey or reddish-grey due to copious covering of hairs; narrowly obconic to obconic or cupular, surface covered in long, silky, antrorse-appressed silvery hairs. Calyx lobes 5, erect to suberect, or spreading, 1.1–1.6 × 0.9–1.8 mm, broadly obtuse, red-green to pale green with a white or pink membranous margin; lobe margins finely ciliate. Receptacle greenish pink or pink at anthesis, darkening to crimson after fertilisation. Petals 5–6, 2.0–3.6 × 2.1–3.3 mm, white, very rarely basally flushed pink, broadly ovate, suborbicular to orbicular, rarely ± cuneate-truncate, apex rounded, margins ± finely and irregularly crumpled or frayed, oil glands not evident in fresh or dried material. Stamens 18–46 in 1–2 weakly defined whorls, filaments white. Anthers dorsifixed, 0.06–0.1 × 0.06–0.09 mm, broadly ellipsoid to scutiform, latrorse. Pollen white. Anther connective gland pale pink when fresh, drying pale orange, spheroidal, coarsely papillate. Ovary 3–5 locular, each with 18–34 ovules in two rows on each placental lobe. Style 1.8–3.0 mm long at anthesis, white basally flushed pink or pale pink; stigma narrowly capitate, as wide as or scarcely wider than style, ± flat, greenish-pink or pink, flushing red after anthesis, surface finely granular-papillate. Fruits 2.2–3.6 × 2.7–3.9 mm, graphite grey, maturing to charcoal fading to greyish-white; narrowly obconic to obconic, rarely cupular, copiously covered in short, silky, antrorse-appressed hairs. Seeds 0.52–1.09 × 0.38–0.72 mm, obovoid, oblong, or oblong-ellipsoid; testa semi-glossy, orange-brown to dark brown, surface coarsely reticulate.

Flowering:

September to January

Fruiting:

February to July

Threats:

Common within open rhyolite rock habitat (90.5 ha (0.3 %) of the island (de Lange & Norton (2004)). As a consequence of past kauri logging, and associated burning, this species has extended its range to include open clay pans, windswept ridges tops, kauri log scoured gorges and other temporarily open sites. In these areas the species is declining through natural regeneration, and in many of these sites it is out-numbered by the hybrids *K. robusta* × *Kunzea sinclairii*. This hybrids though common does not pose a risk; ecological and genetic studies suggest hybrids are declining in abundance as a consequence of natural succession to taller forest (de Lange & Norton 2004).

*Attribution:

Fact Sheet prepared for NZPCN by P.J. de Lange 1 September 2014. Description modified from de Lange (2014).

References and further reading:

de Lange, P.J.; Norton, D.A. 2004: The ecology and conservation of *Kunzea sinclairii* (Myrtaceae), a naturally rare plant of rhyolitic rock outcrops. *Biological Conservation* 117: 49–59.

<http://www.sciencedirect.com/science/journal/00063207/117/1>

de Lange, P.J. 2014: A revision of the New Zealand *Kunzea ericoides* (Myrtaceae) complex. *Phytokeys* 40: 185p doi: 10.3897/phytokeys.40.7973.

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=555



Caption: Mt Young, Great Barrier Island

Photographer: Gillian Crowcroft

Leptospermum scoparium var. *scoparium*

Common Name(s):

manuka, tea tree, kahikatoa

Current Threat Status (2012):

Not Threatened

Distribution:

Indigenous to New Zealand and Australia. Most Australian forms of *L. scoparium* do not match the range seen in New Zealand. However, plants from Tasmania are very similar to, if not identical with some South Island forms, differing mainly by their wider leaf base, and longer, more pungent leaf apex. Manuka was also collected once from Rarotonga by Thomas Cheeseman in the 1800s. It has not been found there since, and is assumed to have been a failed introduction. Further study using DNA sequencing is underway to resolve the status of *L. scoparium* forms both here and in Australia.

Habitat:

Abundant from coastal situations to low alpine habitats.

Features*:

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

Flowering:

Throughout the year

Fruiting:

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

Threats:

Not threatened, though some stands are at risk from clearance for farmland or through felling for firewood.

*Attribution:

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

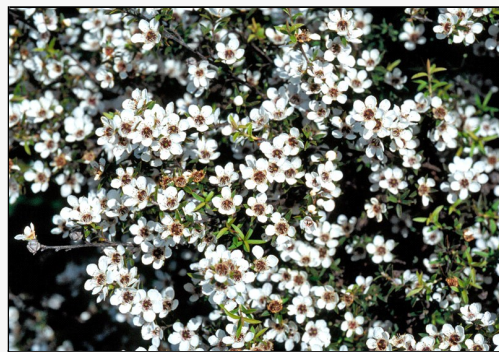
References and further reading:

Gardner, R. 2002. Notes towards an excursion Flora .Manuka *Leptospermum scoparium* myrtaceae. Auckland Botanical Society Journal, 57: 147-149

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=2302



Photographer: © John Braggins



Caption: Flowers of *Leptospermum scoparium* var. *scoparium*

Photographer: Wayne Bennett

Lophomyrtus bullata

Common Name(s):

Ramarama, bubble leaf

Current Threat Status (2012):

Not Threatened

Distribution:

Endemic. North and South Islands. Scarce in the South Island where it ranges to about North Canterbury and Greymouth

Habitat:

Coastal to montane forest and shrubland. Often a locally conspicuous component of the understorey of lowland Podocarp riparian forest. *Lophomyrtus bullata* also occasionally grows on in suitable sites in slope forest, and in wetter areas is sometimes a common component of regenerating shrubland in cut over forest. Where it meets with rohu (*Lophomyrtus obcordata*) the hybrid *L. ×ralphii* is often commonly found. Sometimes *Lophomyrtus xralphii* is locally dominant occurring in places where ramarama is scarce or has seemingly died out.

Features*:

Shrub or tree up to 6 m tall or more. Trunk slender, up to 0.2 m diameter. Bark reddish, fibrous, flaking in small irregular shards, underbark pink. Branches numerous, erect, compactly branched, branchlets initially 4-angled becoming terete with age, rather brittle, finely hairy, hairs ± persistent. Leaves opposite, coriaceous, finely hirsute when young (hairs somewhat stiffly erect to sericeous, appressed, caducous), maturing glabrous, surface minutely glandular-punctate, oil glands colourless, leaf lamina and petiole decurrent with branchlet; petiole 2-5(-10) mm long, rather brittle; leaf lamina 15-30(-50) × 10-15(-40) mm, broadly ovate to suborbicular, bullate, apex obtuse or acute and then often minutely apiculate, adaxially dark green to yellow green, mottled and/or spotted with red, maroon or purple-black circular blemishes, abaxially pink or red-tinged. Flowers 4-merous, 12-14 mm diameter, borne in axillary, solitary monads, on slender, 12-14(-18) mm long, hirsute pedicels. Hypanthium subturbinate, not extending beyond ovary summit, calyx lobes 4, 1.5-2.2 mm long, persistent, spreading, elliptic-oblong, obtuse to subacute. Petals 8-10 × 6-9 mm, suborbicular, white, margins entire to slightly irregular, ciliate, oil glands colourless. Stamens 80-100(-200 or more), free, in 4 (or more) weakly defined whorls, filaments 8-12 mm long, anthers cream, dorsifixed, latrorse. Ovary inferior, 2-3-locular, ovules numerous, in a single row on each linear placenta. Style 10-12 mm long, slender, white, stigma capitate, scarcely dilated. Fruit a broadly ovoid, dark red or black 6-8 mm long berry. Seeds numerous, reniform, 2.7-5.5 mm diameter, testa dark brown, glossy ± smooth, very hard. Seed description modified from Webb & Simpson (2001).

Flowering:

November - March

Fruiting:

January - June

Threats:

Not Threatened

*Attribution:

Fact sheet prepared for NZPCN by P.J. de Lange 9 February 2011. Seed description modified from Webb & Simpson (2001).

References and further reading:

Webb, C.J.; Simpson, M.J.A. 2001: Seeds of New Zealand Gymnosperms and Dicotyledons. Christchurch, Manuka Press.

For more information, visit:

http://nzpcn.org.nz/flora_details.asp?ID=1388



Caption: *Lophomyrtus bullata*
Photographer: Wayne Bennett



Caption: *Lophomyrtus bullata*
Photographer: Wayne Bennett

Metrosideros albiflora

Common Name(s):

white rata, akatea

Current Threat Status (2012):

Not Threatened

Distribution:

Endemic. New Zealand: North Island (confined to the northern portion of the North Island where it ranges from Te Pahi south to Pukemokemoke (north of Hamilton) and the northern Kaimai Ranges)

Habitat:

Coastal to montane in forest. *Metrosideros albiflora* is virtually confined to kauri (*Agathis australis*) forest associations

Features*:

Stout vine up to 20 m. Bark initially dark brown, maturing grey, ± tessellated, and flaking in tabular shards. Juvenile and climbing vines sparingly branched, mature (adult) vines much-branched. Branchlets terete, often curved from base, stiffly erect (sometimes pendent), initially reddish and finely pubescent, soon glabrous. Leaves not markedly dimorphic, evenly spaced (i.e. not close-set), coriaceous, glabrous, petiolate; petioles 2-6 mm long, ± terete, stout; juvenile lamina 10-20 × 10-20 mm, ovate to elliptic-ovate, adaxially green to dark green, paler abaxially, oil glands minute (not evident to naked eye), margins weakly recurved, sparsely hairy, glabrescent; adult lamina 35-90 × 20-46 mm, ovate, elliptic-ovate to elliptic-lanceolate, apex abruptly narrowed, acute or subacute, base cuneate, adaxially green to dark green, abaxially paler, oil glands as for juvenile. Inflorescences in large terminal, compound cymose botryia, each carrying 6-10 white flowers. Hypanthium 8 × 5 mm, broadly urceolate to funnellform, ± fleshy, glabrous, margins exceeding ovary (so forming broad disc); calyx lobes 1.8-2.2 mm long, ovate, obtuse, patent or reflexed at maturity. Petals 5 × 5 mm, caducous, suborbicular to orbicular, margins entire; stamens numerous, 15-30 mm long. Anthers yellow. Style 20-35 mm long, stigma capitate. Capsule 5-10 mm diameter, urceolate, 3-4-valved, woody, dark brown to brown-black when mature. Seeds 1.2-2.4 mm long, narrowly elliptic or narrowly obovate, straight (often curved near apex), light orange-yellow or orange, unfilled seeds darker.

Flowering:

August - November

Fruiting:

January - April

Threats:

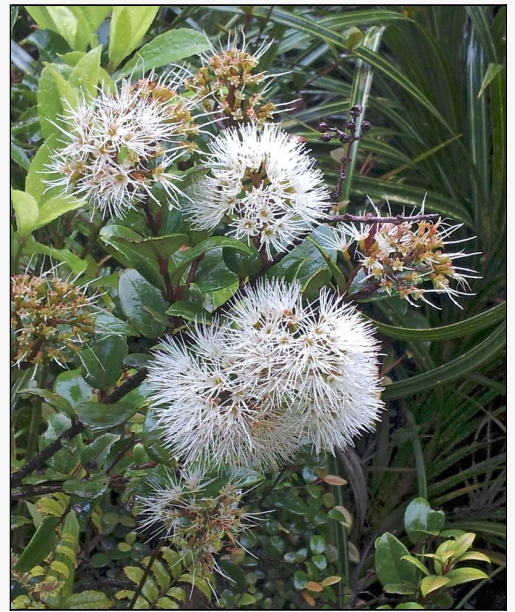
Although not threatened, *Metrosideros albiflora* is often absent from large parts of potential range. It is most common in central and western Northland and the Coromandel Peninsula. Adult vines are often browsed by possums.

*Attribution:

Fact sheet prepared for NZPCN by P.J. de Lange (6 January 2013). Description from herbarium specimens and fresh material

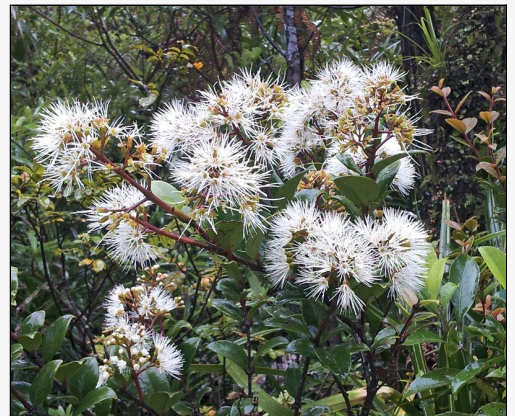
For more information, visit:

http://nzpcn.org.nz/flora_details.asp?ID=979



Caption: Waipoua.

Photographer: Peter de Lange



Caption: Waipoua.

Photographer: Peter de Lange

Metrosideros carminea

Common Name(s):

Crimson rata, Carmine rata

Current Threat Status (2012):

Not Threatened

Distribution:

Endemic. New Zealand: North Island (from Te Pahi south to Taranaki in the west and Mahia Peninsula in the east)

Habitat:

Coastal to montane (mainly coastal to lowland). A vine of closed forest and forest margins (often along water ways and on ridge lines, especially on rock outcrops and cliff faces).

Features*:

Vine up to 15 m (usually less). Bark dark brown to grey, ± tessellated, and flaking in tabular shards. Growth dimorphic, juvenile and climbing vines sparingly branched, mature (adult - reproductive state) heavily branched. Branchlets terete, finely pubescent. Leaves, close-set, coriaceous, petiolate; petioles 1-3 mm. long; lamina of juveniles 10-20 × 8-18 mm, suborbicular, orbicular to broadly ovate, apices obtuse to subacute; adaxially green to dark green, abaxially paler (young foliage (and branchlet growing points) usually pink-tinged), both surfaces finely to distinctly pubescent, hairs pinkish, oil glands conspicuous abaxially not punctate,; adult lamina 15-35 × 7-30 mm, elliptic-oblong, ovate-oblong to broad ovate, apices obtuse to subacute, adaxially dark green and glossy, adaxially paler, ± glossy, ± glabrous. Inflorescences in axillary and/or terminal few- to many-flowered cymose botyria crowded toward apex of branchlets (often obscuring the foliage); peduncles and pedicels finely pubescent, peduncles 20-60 mm long, pedicels 5-10 mm long. Hypanthium urceolate or globose, initially fleshy, finely pubescent, ± glabrescent; calyx lobes 1.8-2.3 mm long, oblong, subacute. Petals 5 × 4 mm, caducous, suborbicular, carmine, shortly clawed, margins ± unevenly crenulate to indistinctly toothed or undulose; stamens numerous 10-15 mm long carmine. Capsule 6-9 mm diameter, subglobose to globose, 3(-4)-valved, exserted, ± woody, dark brown to brown-black when mature.

Flowering:

August - November

Fruiting:

January - April

Threats:

Not Threatened. *Metrosideros carminea* is however most often found as juveniles, in part because the adult vines (at least in dense forest) are often overlooked as they occur high up in the canopy. In some areas adult vines are heavily browsed by possums.

*Attribution:

Fact sheet prepared for NZPCN by P.J. de Lange (5 January 2013). Description adapted from Allan (1961) supplemented with observations made from herbarium and fresh material.

References and further reading:

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

For more information, visit:

http://nzpcn.org.nz/flora_details.asp?ID=980



Caption: *Metrosideros carminea*

Photographer: Peter de Lange



Caption: Carmine rata

Photographer: DoC

Metrosideros diffusa

Common Name(s):

white rata

Current Threat Status (2012):

Not Threatened

Distribution:

Endemic. Found throughout the North, South and Stewart Islands

Threats:

Not Threatened

For more information, visit:

http://nzpcn.org.nz/flora_details.asp?ID=982



Caption: Blue duck S.R

Photographer: Gillian Crowcroft



Caption: Blue duck S.R

Photographer: Gillian Crowcroft

Metrosideros parkinsonii

Common Name(s):

Parkinson's rata

Current Threat Status (2012):

Not Threatened

Distribution:

Endemic. New Zealand: North and South Islands. In the North Island known only from Hauturu (Little Barrier Island) and Aotea Island (Great Barrier Island). In the South Island confined to the western side where it is locally common from Mt Burnett (near Collingwood) south to just north of Hokitika.

Habitat:

Coastal to montane forest. usually along ridgelines in peaty ground. In the North Island confined to montane "cloud" forest, usually in wind-pruned forest, scrubland and on the margins of cliff faces or surmounting rock outcrops

Features*:

Shrub to small spindly tree up to 10 m tall. Multi-trunked, trunks up to 60 mm d.b.h.. Bark pale grey, flaking in small tabular shards. Branches few to many, erect, Branchlets square in cross-section, 4-angled, glabrous, initially dark red, maturing brown-grey to grey. Emergent vegetative buds pink or red-tinged. Leaves coriaceous, glabrous, adaxially dark green to green, abaxially paler, oil glands minute, scarcely evident to naked eye (except abaxially) petiolate; petioles almost wanting 2.2-3.0 mm. long; lamina 25-75 × 15-30 mm, ovate-lanceolate, base truncate to subamplexicaul, apex usually abruptly narrowed, to an obtuse or subacute tip. Inflorescences cauliflorous, borne in compound, sometimes leafy cymose botyria, mostly below main vegetative branches. Flowers up to 8 per cyme, crimson. Hypanthium turbinate, margins exceeding disc, calyx lobes ovate-triangular. Ovary trilocular. Capsules 3-valved, 6-8 mm long, brown-grey to grey, subglobose to globose. Petals caducous, 5 × 5 mm, suborbicular to oblong, margins finely denticulate or subentire; stamens numerous, filaments 20-28 mm long, anthers yellow, style 23-30 mm long, stigma capitate. Seeds 1.2-2.0 mm long, narrowly obtriangular, narrowly elliptic to narrowly obovate, straight, rarely curved toward apices, orange, unfilled seeds similar but darker in colour.

Flowering:

September - December

Fruiting:

January - April

Threats:

Not Threatened. However, outside its north western South Island haunts it is only known from two small populations on Aotea Island (Great Barrier Island) and Hauturu (Little Barrier Island) where it is very uncommon. On Aotea some trees have been damaged by tracking up Mt Hira-kimata (Mt Hobson). In the South Island, like all rata species, *M. parkinsonii* is impacted upon by possums.

*Attribution:

Fact sheet prepared for NZPCN by P.J. de Lange (8 January 2013). Description from herbarium specimens and fresh material

For more information, visit:

http://nzpcn.org.nz/flora_details.asp?ID=976



Caption: *Metrosideros parkinsonii*

Photographer: Hamish Dean



Caption: In cultivation. Nov 2006.

Photographer: Geoff Davidson

Metrosideros robusta

Common Name(s):

Northern rata

Current Threat Status (2012):

Not Threatened

Distribution:

Endemic. New Zealand: Three Kings Islands, North Island (formerly widespread from Te Pahi south to Wellington, now scarce over large parts of this range, and apparently absent from the Hawkes Bay). South Island (abundant from Nelson west and south to Greymouth, from there locally common to about Hokitika, reaching a southern limit just south of Lake Mahinapua. In the east recently recorded from one site near Okiwi Bay, western Marlborough Sounds - though this site is unusual and may not be natural).

Habitat:

Coastal and Lowland forest occasionally extending to montane forest in some parts of the country. Once the co-dominant emergent tree of a distinctive vegetation type called rimu (*Dacrydium cupressinum*)/rata forest.

Features*:

Stout tree 25-40 m tall, often starting life as epiphyte, so basal trunk is hollow, and composed of interlocking roots. Trunk 2-3(-4) m diam. Bark firm, persistent, grey-brown, brown or rarely pale yellow, tessellated, shallowly furrowed, somewhat corky. Branchlets numerous, very twiggy (broom-like), puberulent with rust-brown hairs when young. Leaves (excl. water shoots) 25-50(-65) x (10-)15-25(-30) mm, leathery, dark-green, elliptic, ovate-oblong, to rhomboidal, apex obtuse, distinctly notched. Young growth pink, finely covered in rust-brown hairs, becoming glabrescent with age (hairs long persistent on midrib and leaf base). Water shoots - variable shape and size, glabrescent, pale green or yellow-green, delicate and wilting if detached from tree. Inflorescence a broad, terminal corymbiform, cymose, cluster of numerous flowers apically dominated by a temporarily dormant vegetative bud, which recommences growth following flowering. Pedicels 5-8 mm long. Hypanthia obconic, 9 mm long, sepals broad-triangular, petals shedding early, 2 x 3 mm, oblong, dark red, pink, orange or yellow, stamens numerous (25)-30-40 mm long, anthers versatile, pollen dark yellow to orange. Pistil similar length, stigma capitate. Ovary fused to hypanthium, ovules numerous. Capsules oblong 6-9 mm, distinctly raised above sepals and hypanthial rim. Seeds 2.5-5.5 mm, narrowly elliptic to linear, often twisted with apices usually curved or hooked.

Flowering:

(October-) November-January
(-February)

Fruiting:

(December-)-January
(-March)

Threats:

Northern rata is most at risk from possum (*Trichosurus vulpecula*) browse. Possums can seriously damage and kill trees, and have, in some situations been directly responsible for the regional loss of northern rata. The species remains common over large parts of range, a situation being improved by the efforts of people encouraged by the national coordination of Project Crimson. Another threat to northern rata comes from hybridization with pohutukawa (*Metrosideros excelsa*) which has now become established well south of its presumed natural southern limits. Ideally people should be discouraged from planting pohutukawa in places it is not natural to, especially when this borders habitats containing northern or southern rata (*Metrosideros umbellata*).

*Attribution:

Fact sheet prepared for NZPCN by P.J. de Lange (4 January 2004). Description adapted from Allan (1961).

References and further reading:

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

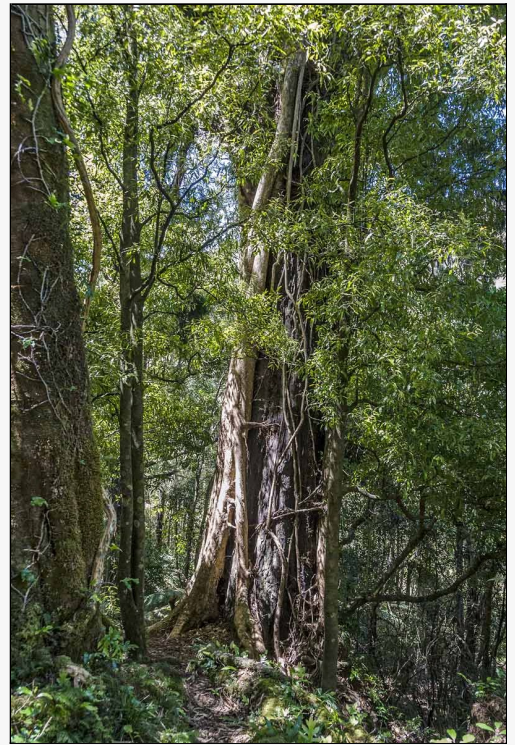
Beddie, A.D. 1953. Root behaviour in *Metrosideros*. *Wellington Botanical Society Bulletin*, 26: 2-6

Report on Northern rata dieback - *Minginui faces* by Gordon Hosking (DOC Conservation Advisory Science Notes, No. 66, 1994)

Sawyer, J.W.D., Mckessar, K. 2007. Northern rata (*Metrosideros robusta*): a species in decline? *Wellington Botanical Society Bulletin*, 50: 48-55

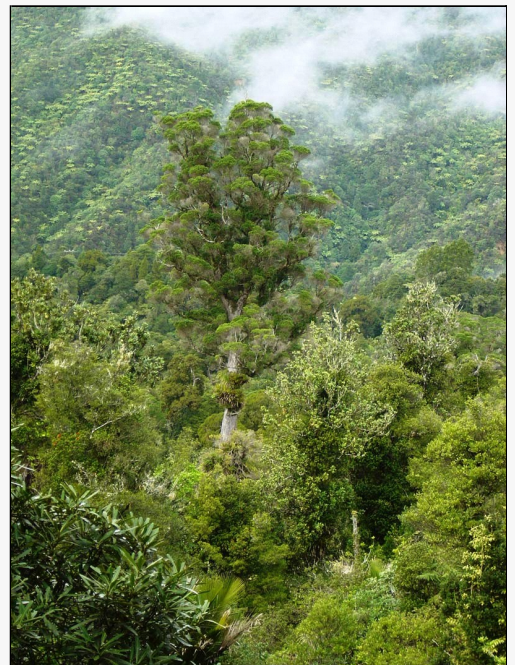
For more information, visit:

http://nzpcn.org.nz/flora_details.asp?ID=977



Caption: Roots girdling trunk of rimu. Tararua Forest Park. Nov 2012.

Photographer: Jeremy Rolfe



Caption: *Metrosideros robusta*
Photographer: Wayne Bennett

Metrosideros umbellata

Common Name(s):

Southern rata

Current Threat Status (2012):

Not Threatened

Distribution:

Endemic. North, South, Stewart and Auckland Islands. In the North Island locally present from Te Pahi south to Mt Pirongia, the northern Kaimai Ranges (Ngatamahinerua) and Mt Manuoha (Te Urewera National Park). In the South Island from Durville Island south and to Fiordland, with a mainly westerly distribution (absent from Marlborough), most of Canterbury and northern Otago. Common on Stewart and the Auckland Islands.

Threats:

Not Threatened. However, rather uncommon in the North Island, and at some sites it is locally threatened by possum browse.

References and further reading:

Beddie, A.D. 1953. Root behaviour in *Metrosideros*. Wellington Botanical Society Bulletin, 26: 2-6

de Lange, P.J. 1994. Southern rata *Metrosideros umbellata* confirmed from Mt Pirongia Western Waikato. Auckland Botanical Society Journal, 49: 57-59.

Druce, A.P. 1959. Southern rata in the Tararuas. Wellington Botanical Society Bulletin, 31: 12-15

Gardner, R.C.; de Lange, P.J.; Bowala, T.; Brown, H.A.; Keeling, J.; Wright, S.D. 2004. A Quaternary phylogeography for New Zealand inferred from chloroplast DNA haplotypes in *Metrosideros* (Myrtaceae). *Biological Journal of the Linnean Society* 83: 399-412.

For more information, visit:

http://nzpcn.org.nz/flora_details.asp?ID=978



Caption: Bark detail, Travers Valley, Nelson Lakes National Park
Photographer: John Sawyer



Caption: Flowering tree, Travers Valley, Nelson Lakes National Park
Photographer: John Sawyer