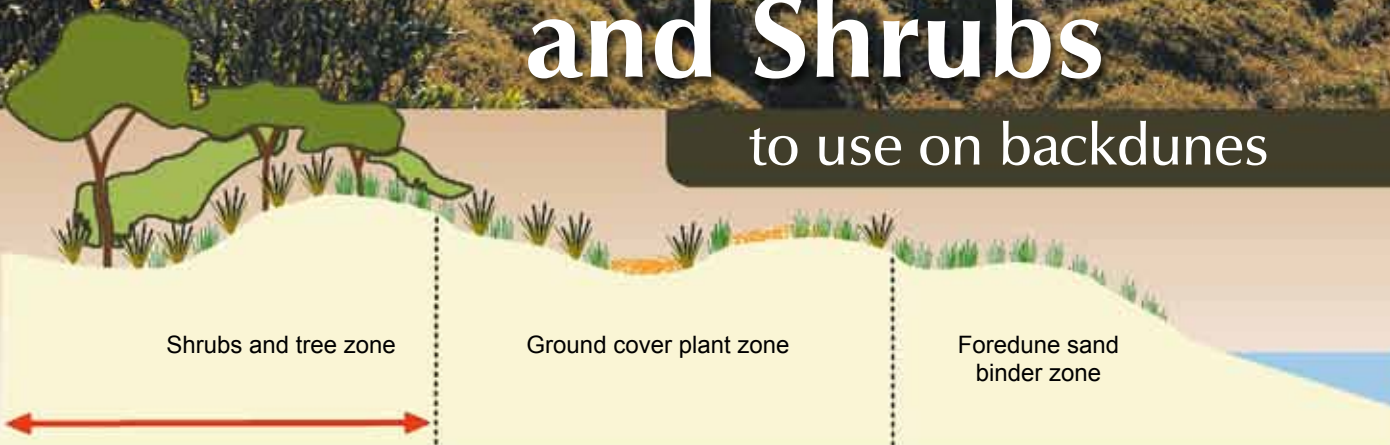


Native Trees and Shrubs

to use on backdunes



INTRODUCTION

The landward zone of most of New Zealand's coastal sand dunes was once covered in a diverse range of coastal native shrub and tree species. The coastal forest and shrubland zone was part of the sequence of coastal vegetation zones from foredunes to backdunes to lowland forest (refer to earlier Dunes Trust Handbook articles for the sand binding foredune zone – Section 7, and the ground cover zone – Article No. 8.2). Since arrival of humans to New Zealand, coastal dunes have become severely degraded with virtually no intact sequences of dune vegetation from sand binders through to

forest left in most regions (refer to Dunes Trust Handbook Section 10 – Human impacts).

Restoration of backdunes is an increasing priority for coast care groups and management agencies in recent years. This article provides a brief description of key native shrub and tree species most commonly planted in restoration programmes on backdunes. This has been compiled from various sources where further details can be found including the New Zealand Plant Conservation Network; NatureWatch NZ; Esler (1978); and publications and websites of regional councils.



HARAKEKE Flax (*Phormium tenax*)

Description: Fan-like clumps of stiff, upright leaves up to 2m long, with distinctive red flowers on tall stalks; provides food for bellbirds, tui and silver-eyes as well as lizards and bees.

Natural distribution and habitat: Flax is very common and widespread nationwide.

Flowering and seeding: Flowers from October to December; black seed pods dry and split releasing shiny black seeds in autumn.

Establishment: One of the hardiest plants to use in restoration; best planted into damp dune hollows but establishes on dunes from the crest of foredunes to backdunes; grows easily from fresh seed and from dividing rooted fans from established plants.



TI KOUKA Cabbage tree (*Cordyline australis*)



Description: Distinctive tree growing up to 12m high; easily recognisable form with an erect trunk branching into tufts of tough long narrow pointed leaves; this iconic coastal tree grows naturally on dunes.

Natural distribution and habitat: Common nationwide in many habitats from coastal dunes to montane forest.

Flowering and seeding: Small white, fragrant flowers appear in large bushy sprays in October to December; seed within small white fruit appear from January to March.

Establishment: Easily grown from fresh seed; often regenerates from bird-dispersed seed; tolerates a range of sand dune sites but most likely to flourish in lower moist swales along with harakeke.



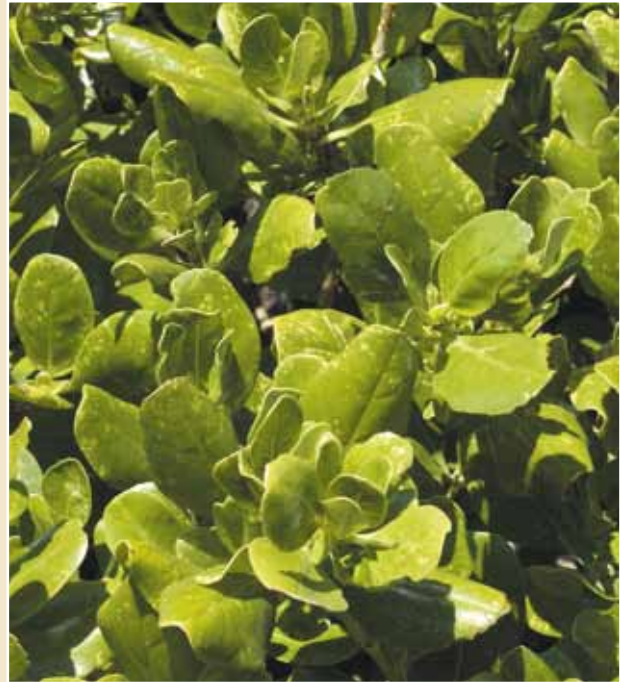
TAUPATA (*Coprosma repens*)

Description: Common low-growing shrub or small tree with glossy bright green fleshy leaves; sprawling habit on exposed sites.

Natural distribution and habitat: Occurs in North and South Islands as far south as Greymouth and Marlborough; now extensively naturalised further south; inhabits edge of coastal forests and rocky shores; often present as understorey within coastal forest.

Flowering and seeding: Green-white flowers from June to February; seed in orange-red drupes over winter.

Establishment: Easily grown from fresh seed, semi-hardwood cuttings and layered pieces; a major species for restoration of backdunes within natural limit but highly palatable so stock and pest animal control essential; moderately frost-tender.



NGAIO (*Myoporum laetum*)



Description: Shrub or small tree up to 10 m tall; leaves fleshy, yellow-green to green with conspicuous glands; easily confused with Tasmanian boobialla (*Myoporum insulare*) but distinguished by its serrated gland-spotted leaves.

Natural distribution and habitat: Throughout North and South Islands in coastal to lowland forest; hybrid swarms with Tasmanian species in some parts of the country.

Flowering and seeding: Purple to white flowers from October to January; fruit are ovoid drupes ripening to dark reddish purple from December to June.

Establishment: Easily grown from fresh seed and semi-hardwood cuttings; hardy plant for backdunes often used to provide initial woody cover; plants on exposed seaward sites can be defoliated by salt-laden winds during storms; avoid sourcing seed and planting the Tasmanian species.





KARO (*Pittosporum crassifolium*)



Description: Bushy small tree with greyish leathery oval leaves that are white undersides.

Natural distribution and habitat: Great Barrier Island and northern half of North Island from the Far North south to northern Taranaki and

East Cape; widely naturalised further south to Wellington and in the South Island including coastal and offshore islands favouring steep slopes and within dune forest.

Flowering and seeding: Clusters of small dark red flowers in spring and large hard green fuzzy capsules in autumn; seeds widely distributed by indigenous and exotic birds.

Establishment: Easily raised from fresh seed and planted on a range of dune sites; one of the most hardy species used in restoration of dunes within its natural distribution limit; readily regenerates from bird distributed seed and often dominates early successional recovery of shrubland.

TAUHINU Cottonwood (*Ozothamnus leptophyllus*)



Description: Grey or yellow-green bushy shrub up to 2 m tall; short narrow leaves.

Natural distribution and habitat: Found throughout New Zealand; widely distributed from coast to hillcountry inhabiting open areas and disturbed sites.

Flowering and seeding: Small white flowers in clusters producing white fluffy seeds in autumn.

Establishment: Easily raised from seed; often regenerating on landward dunes as unpalatable to rabbits and stock; very hardy with high survival and fast early growth after planting on open backdune sites.



AKEAKE (*Dodonea viscosa*)

Description: Bushy green large shrub with flaky reddish bark and long thin wavy leaves.

Natural distribution and habitat: Found from North Cape to Banks Peninsula and Greymouth; occurs on backdunes and in coastal and lowland forest.

Flowering and seeding: Yellow to orange-red flowers from spring to mid-summer; develop into green dry 2-3 winged seed in autumn.

Establishment: Plants easily propagated from seed; improved success where seedlings planted in sheltered backdunes on leeward dune slopes; crowns of established plants become wind shorn from onshore winds on exposed sites; avoid red and purple cultivars..



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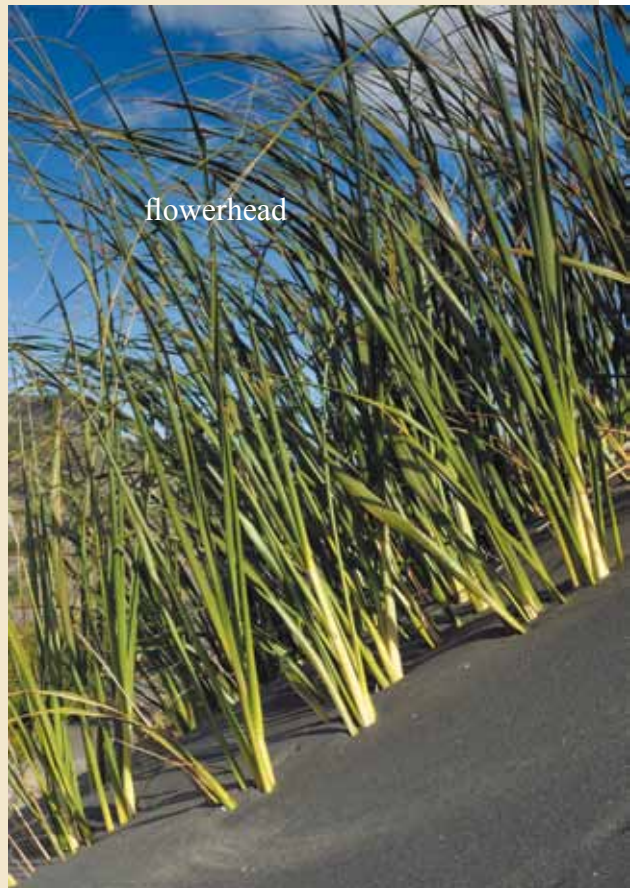
TOETOE *Austroderia splendens*, *A. richardii*, *A. fulvida*, *A. toetoe*

Description: Large tussock-forming tall grass with leaves up to 1-2 m long with sharp leaf edges; flower plumes range from 3-6 m high depending on species – *A. splendens* 6 m, *A. richardii* 3 m, *A. fulvida* and *A. toetoe* 3.5-4 m.

Natural distribution and habitat: Ranges of each species varies – *A. splendens* upper half of the North Island; *A. richardii* confined to the South Island; *A. fulvida* throughout North Island but scarce north of Auckland; *A. toetoe* – west coast North Island from Waikato to Wellington; all species found on dunes but also grow inland.

Flowering and seeding: Flowers from September-November and seeds October-March.

Establishment: All species easily grown from fresh seed and divisions of established plants; native toetoe often confused with the invasive larger exotic pampas grass species (native toetoe are spring-flowering rather than autumn flowering of pampas); toetoe can be difficult to establish on drought-prone dune sites – plant in swales.





HOUPARA Coastal Five-finger (*Pseudopanax lessonii*)

Description: Small tree up to 6 m tall; branches stout, with glossy green leathery leaves often in groups of five leaflets; coastal tree with fleshy hand-shaped leaves.

Natural distribution and habitat: Northern North Island to Poverty Bay and northern Taranaki.

Flowering and seeding: Green coloured flowers; dark purple fleshy fruit appear in autumn

Establishment: Can be grown easily from seed; hardy native tree often used in early successional recovery of shrubland on degraded backdunes; palatable and extremely vulnerable to stock and rabbits for several years after planting.



POHUTUKAWA New Zealand Christmas tree (*Metrosideros excelsa*)

Description: Large often sprawling multi-stemmed evergreen tree up to 20 m tall; leathery, oval dark green leaves and silky undersides; trunks up to around 20 metres long often with aerial adventitious dangling reddish roots; distinctive crimson/red flowers appearing at Christmas time.

Natural distribution and habitat: Naturally occurring from Northland to Poverty Bay and north Taranaki; now found as far south as Dunedin; inhabits coastal forest most prominently fringing rocky shores and headlands but does grow on sand dunes.

Flowering and seeding: Bright red flowers present from November to January; seeds appear from March to April.

Establishment: Easily raised from seed sown fresh; better survival when planted on dunes in mixture with other species to provide side shelter and where mulch is used; trees vulnerable to browsing by possums.





COASTAL TREE DAISY (*Olearia solandri*)

Description: Bushy shrub with yellow twigs bearing clusters of dark green leaves that are white underneath.

Natural distribution and habitat: North Island and the northern South Island inhabiting coastal areas and shrubland.

Flowering and seeding: White flowers producing wind-blown fluffy seed in autumn.

Establishment: Not widely planted but high survival and good early growth for nursery-raised seedlings planted in Taranaki and Wellington backdune restoration programmes; hardy coastal shrub for planting on backdunes.



OTHER NATIVE TREE AND SHRUB SPECIES

There are a variety of other native tree and shrub species found on backdunes. Some regenerate naturally where there are nearby seed sources. Some have proved difficult to establish by planting (e.g. Kawakawa – *Macropiper excelsum*; mahoe – *Melicytus ramiflorus*; manuka – *Leptospermum scoparium*; kanuka – *Kunzea ericoides*). Some have limited regional distributions but cover a range of sites from coastal to inland (e.g. matagouri – *Discaria toumentou*).

With increasing distance from the sea, there is greater scope to use a wide range of lowland shrub species as early colonisers (e.g. karamu – *Coprosma robusta*; local koromiko species – *Hebe* spp.; whauwhaupaku/five finger – *Pseudopanax arboreus*; local *Pittosporum* species).

As succession progresses, coastal lowland forest comprises an increasing diversity of tree species. In most regions coastal forest species are only evident in small remnants that have survived widescale clearing and development of lowland sand country. Depending on natural distributions, degree of disturbance and available habitats, these include native hardwood trees (e.g. karaka – *Corynocarpus laevigatus*; puriri – *Vitex lucens*; kohekohe – *Dysoxylum spectabile*; southern rata – *Metrosideros umbellata*) and conifer trees (e.g. totara – *Podocarpus totara*; matai – *Prumnopitys taxifolia*; kahikatea – *Dacrycarpus dacrydioides*).





Article No. 8.3 - Native Trees and Shrubs for Backdunes



Further information

Bay of Plenty Regional Council, Backyard Buffers. Coast Care Information Brochure No. 9. Environment Bay of Plenty Regional Council. 24p.

Esler, A.E. 1978: *Botany of the Manawatu District*. Government Printer, Wellington, New Zealand. 206p.

NatureWatch NZ www.naturewatch.org.nz

New Zealand Plant Conservation Network www.nzpcn.net.nz

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The mission of the Dunes Trust is:

To see the majority of New Zealand dunes restored and sustainably managed using indigenous species by 2050.