

Soil Conservation Practice

REVEGETATION AND SHELTER PLANTS FOR COASTAL CONDITIONS

Introduction

The land margin bordering the sea represents a unique and sensitive environment, and the vegetation in this zone has several important functions. Coastal soils and sands are readily eroded by wind and water action, and a good vegetation cover is necessary to prevent this. Natural character of the coastal environment is preserved through the maintenance and restoration of indigenous plant types found in these zones. Also a range of plant types can be used for sheltering inland areas or for landscaping and screening man-made features.

When planting in coastal areas, site conditions will largely determine what plants to select. To maintain natural landscape character native plants should be used which best suit local conditions. The choice of suitable species is limited in highly exposed situations, but is progressively wider for more sheltered zones inland.

Where possible, obtain stock of native plants that has been propagated from local sources. These plants are better adapted to the prevailing climate than material of the same species from an inland source. Pest control is important also as coastal conditions often provide an ideal habitat for rabbits, which can inflict considerable damage on new plantings. Consult the local Environment B-O-P animal pest officer for pest control advice before planting.

Plants for Sand Dune Environments

The foredune above the high tide mark is a harsh environment and specially adapted plants are required.

<i>Austrofestuca littoralis</i>	Sand Fescue
<i>Calystegia solandella</i>	Sand Convolvulus
<i>Carex testacea</i>	Carex
<i>Desmoschoenus spiralis</i>	Pingao
<i>Disphyma australe</i>	NZ Ice Plant
<i>Spinifex hirsutus</i>	Spinifex

Spinifex and Pingao are particularly useful for stabilising sand dunes by trapping wind blown sand. They are well adapted to the foredune environment, but also respond well to periodic dressings of nitrogen fertiliser. For more information on plant sources or further advice and assistance regarding foredune revegetation, contact the Bay of Plenty Coast Care Coordinator through Environment B-O-P.

Also see the Coast Care Bay of Plenty Programme Brochures on Pingao (No. 5) and Spinifex (No. 6)

In the back dunes, conditions are slightly more sheltered and a wider range of species may be grown, including:

<i>Cassinia leptophylla</i>	Tauhinu, Cottonwood
<i>Coprosma acerosa</i>	Sand Dune Coprosma
<i>C.repens</i>	Taupata
<i>Muehlenbeckia complexa</i>	Muehlenbeckia
<i>Olearia solandri</i>	Coastal Tree Daisy



Taupata on a highly exposed coastal site. Muehlenbeckia dune cover in the background.

To aid establishment of plants in this zone, use reasonably large potted stock (pb3–pb5 planter bag) with a 12 month slow release fertiliser incorporated in the potting mix. Mulch plants well to suppress weeds and conserve soil moisture.

Inland High Exposure Sites

A greater variety of species can be used on these sites, including a number of exotics for shelter or landscaping purposes.

Indigenous Species

<i>Coprosma repens</i>	Taupata
<i>Griselinia littoralis</i>	Papauma, Broadleaf
<i>Metrosideros excelsa</i>	Pohutukawa
<i>Myoporum laetum</i>	Ngaio
<i>Olearia traversii</i>	Chatham Island Akeake
<i>Pittosporum crassifolium</i>	Karo
<i>Phormium tenax</i>	Harakeke, Flax
<i>Pomaderris apetala</i>	Tainui



Ngaio is well adapted to coastal conditions

Exotic Species

<i>Banksia integrifolia</i>	Coast Banksia
<i>Casuarina equisetifolia</i>	Horsetail Sheoak
<i>Cupressocyparis leylandii</i>	Leyland Cypress
<i>Cupressus macrocarpa</i>	Macrocarpa
<i>Lagunaria patersonii</i>	Norfolk Island Hibiscus
<i>Pinus radiata</i>	Radiata Pine
<i>Quercus ilex</i>	Holm Oak
<i>Tamarix chinensis</i>	Tamarix

Inland Moderate Exposure Sites

This zone allows for a greater diversity of plants to be used, in addition to those listed above. For more information on useful shelter species, see *Sustainable Options SC17/98 Farm Shelterbelts*

Indigenous species

<i>Cortaderia selloana</i>	Toetoe
<i>Cordyline australis</i>	Tikouka, Cabbage Tree
<i>Corokia x virgata</i>	Korokio
<i>Corynocarpus laevigata</i>	Karaka
<i>Dodonaea viscosa</i>	Akeake
<i>Hoheria populnea</i>	Houhere, Lacebark
<i>Kunzea ericoides</i>	Kanuka
<i>Leptospermum scoparium</i>	Manuka

Exotic Species

<i>Acacia baileyana</i>	Cootamundra Wattle
<i>A. parvissima</i>	Alpine Wattle
<i>Callistemon spp</i>	Bottlebrush
<i>Casuarina glauca</i>	Swamp Sheoak
<i>Chamaecytisus palmensis</i>	Tagasaste, Tree Lucerne
<i>Eucalyptus botryoides</i>	Southern Mahogany
<i>E. ficifolia</i>	Red Flowering Gum
<i>Melia azedarach</i>	Indian Lilac, Bead Tree

Sand Country Pasture Species

Vegetation cover on farmland near the coast is also important for control of wind erosion. Where the pasture cover is disrupted by overgrazing or stock treading/wallowing, it should be oversown to re-establish the vegetation cover. The following grass and legume species can be used as seed mixes for sowing sand country.

Dry Sand Ridges

'Grasslands Matua' pairiegrass	8 kg
'Grasslands Wana' cocksfoot	6 kg
'Grasslands Colenso' broad red clover	2 kg
'Grasslands Turoa' Montgomery red clover	2 kg
'Mt Barker' subterranean clover	1.5 kg
'Tallarook' subterranean clover	1.5 kg
'Grasslands Goldie' birdsfoot trefoil	3 kg
Total	28 kg/ha

Moist Sand Flats

'Grasslands SuperNui' perennial ryegrass	15 kg
'Grasslands Wana' cocksfoot	5 kg
'Grasslands Pitau' white clover	3 kg
'Mt Barker' subterranean clover	4 kg
'Grasslands Upward' strawberry clover	5 kg
'Grasslands Pawera' red clover	5 kg
Total	37 kg/ha

For more information on suitable forage cultivars, contact AgResearch at Ruakura or Palmerston North, or your local seed merchant. Ensure that legume seed is inoculated with a suitable strain of *rhizobium* to promote better growth. To aid establishment when oversowing, top-dress with an NPK fertiliser (12:10:10) at a rate of 150 kg/ha. Follow this six months later with a dressing of 200 kg/ha of 30 % potassic superphosphate. Once pasture is established, use soil testing to determine fertiliser needs and consult your local fertiliser company representative.

For further information and advice, contact your local Soil Conservator at the following Environment B-O-P offices:

WHAKATANE	Tel	07 307 2545
	Fax	07 307 2544
ROTORUA	Tel	07 349 5070
	Fax	07 349 5074
TAURANGA	Tel	07 574 8810
	Fax	07 574 8814

Further Reading

Plant Materials Handbook for Soil Conservation, Vol I-III
CWS Van Krayenoord and R L Hathaway (eds) Water and Soil Misc Publications No. 93, No. 94 and No. 95, NWASCO, Wellington

Foredune Vegetation Coast Care Information Brochure No. 3, Coast Care Bay of Plenty Programme

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