

# Coastal dune vegetation in Wellington



Key coastal dune Te Humenga, Palliser Bay

We assessed the status of coastal dune vegetation in Wellington (building on previous studies) as a basis for prioritising dune conservation efforts.

## Database

Information about coastal dune species has been collated since 1993 from a variety of sources. That information is now contained in the Department of Conservation's national plant database (Bioweb). Information sources include:

- All New Zealand herbaria
- Plant checklists for coastal dune areas (Sawyer 2001)
- Species record sheets compiled by botanists
- Coastal Resource Inventory
- Sand dune and beach vegetation inventory (Partridge 1992)
- Other reports and publications (e.g. Wellington Botanical Society Bulletin)

Coastal dune vegetation is the plant community that occupies the drier raised coastal sand and gravel substrates seaward of the coastal forest zone. It is dominated by low-growing grasses and sedges; it does not include coastal dune forests, dune wetlands or inland dunes.

The conservation goals for coastal dune vegetation in Wellington are:

- To ensure its continued survival throughout its natural range
- To restore it to sites where such vegetation occurred previously.



*Desmoschoenus spiralis* (pingao)



Key coastal dune at Pencarrow Lakes with *Austrofestuca littoralis* in foreground

## Threats

Threats facing native dune vegetation, identified during this project, include

- Residential development and urban encroachment into coastal areas
- Colonisation of native plant communities by exotic species such as *Chrysanthemoides monilifera* (boneseed) and *Cortaderia selloana* (pampas grass)
- Extensive planting of exotic species such as marram grass (*Ammophila arenaria*) and lupins
- Grazing and disturbance by pest animals (such as rabbits and hares) and stock
- Construction of sea walls (changing wave energy dynamics and sand-blow processes)
- Use of vehicles in dunes (such as motorbikes and 4-wheel drive vehicles).



The invasive boneseed, *Chrysanthemoides monilifera*



Vehicle damage to a South Wellington coast dune

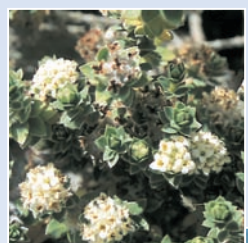
## Conservation overview



Ten key coastal dune systems have been identified in Wellington Conservancy. The plant distributions of five key coastal dune species were mapped and an assessment made of their level of protection in reserves and their status (see Table). Dune species populations are generally poorly protected (29% of sites). *Pimelea arenaria* is the least protected (19%). A significant decline in native coastal plants has occurred during the last 100 years. Species most seriously affected are *Coprosma acerosa* and *Pimelea arenaria*.

- Key coastal dune
- Site of *Pimelea arenaria*
- Land managed for conservation

Coastal dune species	Total no. of sites	No of sites in protected areas	% in protected areas
<i>Austrofestuca littoralis</i> (sand tussock)	25	10	40
<i>Coprosma acerosa</i> (sand coprosma)	49	12	24
<i>Desmoschoenus spiralis</i> (pingao)	73	27	37
<i>Pimelea arenaria</i> (sand daphne)	37	7	19
<i>Spinifex sericeus</i> (spinifex)	57	14	25
<b>Total</b>	<b>388</b>	<b>70</b>	<b>29</b>



Orin John



Colin Ogle

Example: *Pimelea arenaria*

A low-growing shrub (< 30 cm) with spreading, more or less erect, leafy branches often half covered in sand. Grows on landward side of fore dunes and also in back hollows and blowouts.

Of the 27 recorded sites, the species survives at only 14 sites (52%).

## Conclusions

Coastal dune vegetation is poorly represented in the Protected Natural Area network in Wellington (only two key dune systems are fully protected).

A serious decline has occurred in the range of coastal dune species and that decline is continuing. Threatened coastal plant species are rarely found in protected areas and some coastal dune species have gone extinct locally.

Further research is required to

- Classify dune plant communities
- Determine the effects of pests on the functioning of coastal dune communities
- Investigate and improve ecological understanding of coastal dune ecosystems

## Further information

Detailed information is contained in 'Coastal dune vegetation in Wellington Conservancy: Current status and future management' by Randall Milne & John Sawyer (in press).

See also:

Sawyer, J.W.D. 2001. Plant checklists and vegetation survey data for areas in Wellington Conservancy (excluding the Chatham Islands). Department of Conservation, Wellington.

Partridge, T.R. 1992. The sand dune and beach inventory of New Zealand. I. North Island. DSIR Land Resources Scientific Report No. 15.