# Management guidelines for dune use

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Leaflet No.
V–01.3

## Dune management in urban areas

### Introduction

Sandy beaches and their associated dunal systems are under increasing pressure as the population along the coastline of Queensland continues to grow. The demand for public facilities and recreational space in dunal areas must be balanced against the need to provide adequate buffer zones to accommodate erosion and to protect sensitive dune vegetation communities. The tolerance of the various dune zones to human impact is important in determining the type of management appropriate to each of these areas. Information on the tolerance levels of the different dune zones is provided in Leaflet No.V-01.1

Management of beaches and dunal areas on public land is generally the responsibility of the local government. However, within designated erosion prone areas, certain works, including any that involve interference with sand, require approval from the Beach Protection Authority.

### Shoreline fluctuations

The shorelines of sandy beaches fluctuate naturally over time, and many areas are subject to gradual recession. Major storm events, including cyclones, can dramatically erode dunes, but these dunes then rebuild naturally. The Authority has designated erosion prone areas along the coast which indicate

A broad, well vegetated dune between the beach and urban development ensures protection againt wind erosion and provides a substantial buffer to accommodate loss of foreshore caused by wave attack.

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land that may be vulnerable to sea erosion or tidal inundation within the next fifty years. These areas should be maintained in a development-free state so that natural cycles of erosion and accretion can continue unhindered. Any development placed in areas vulnerable to erosion must be relocatable or considered expendable in the event of an erosion threat.

## Foredune

The foredune, or most seaward dune ridge, is the most critical part of the dunal system and is the area least able to tolerate any disturbance or development. Vegetation on the foredune builds up the dunes by trapping wind-blown sand, preventing it from being blown inland and lost from the beach system. The sand-binding plants that grow on the foredune and perform this vital function are highly susceptible to damage through trampling and soil disturbance.

In urban areas the level of vehicle and pedestrian traffic across the dunes would rapidly reduce the vegetative cover and leave the dunes susceptible to wind erosion. Dunes which have been depleted by wind erosion are more vulnerable to wave attack and overtopping, and recession of the coastline is more likely to occur. This situation can be avoided by the provision of dune fencing, beach access tracks and board and chain installations over the foredunes to keep pedestrians and vehicles away from the sensitive dune vegetation. Further information regarding these dune protection works is contained in Leaflet Nos. V-02.2, V-02.5 and V-02.6.

On the foredune, herbaceous vegetation that is damaged or is too sparse to trap sand effectively will benefit from an application of nitrogenous fertilizer. Applications of fertilizer should not become a routine operation, but should be used strategically where it is necessary to boost the vigour and growth rates of dune plants in order to achieve stability. Fertilizer usage is detailed in Leaflet No. V-05.1.

No works other than accesways and essential protective works should be permitted on the foredunes.

## Hind dunes

Hind dunes areas, or the series of dune ridges behind the foredune, are generally more tolerant of human impact than foredunes and can provide suitable sites for the provision of minor public facilities such as shelters, picnic areas and bikeways. Any permanent structures such as buildings or toilet blocks should be located outside the erosion prone areas. Where hind dune development is undertaken it is important to ensure that an adequate buffer zone including the foredune is maintained in good condition and protected with fencing and accesways if necessary. A zone of trees including horsetail she-oaks should be left sufficiently intact to protect the hind dune area, especially on exposed coastlines.

Hind dune areas are sometimes turfed to provide suitable space for picnicking and recreational activities. Heavily used turf areas may require watering and fertilizing to maintain a good ground cover. Regular mowing should control weeds in turfed areas, but care must be taken that weeds do not establish around the perimeter of the mown areas and then invade adjacent bushland. Weed invasion is a common feature of disturbed dunal areas. Weeds can also displace many native species in coastal bushland, disrupt natural regeneration and successional processes, increase susceptibility to bushfires and eventually change the characteristics of the dune plant community.