

Management guidelines for dune use

Planting seedlings on coastal sand dunes

Introduction

Information on raising seedlings in the nursery, and the age and size at which the common dune species such as horse-tail she-oak, banksia and wattle are generally ready for planting out is given in Leaflets No. V-06.1 and V-06.2. This leaflet describes how nursery-raised seedlings are prepared and planted on coastal sand dunes.

Seedling preparation

Poor survival of seedlings after planting on dunes is often due to the moisture stress encountered during the first few weeks when the root system is unable to obtain enough moisture to sustain the plant. This problem is greatly reduced if the seedlings can be watered during this critical early stage, but sometimes it is impossible or impractical to do this and in these cases sound management practices and rainfall must be relied on. All seedlings for dune planting must be well hardened in the nursery by exposing them to full sun, wind and some periods of moderate moisture stress. Seedlings with soft, lush foliage are the first to wilt or burn when planted out in tough conditions. If nursery seedlings have produced excess foliage, this places heavy demands for moisture on the root system after planting out, so it is good practice to reduce the foliage by pruning them. Do this at least a week before the planting date so that the seedlings have time to recover.

It is also important to check that the seedling root system is healthy in appearance and is sufficiently well developed to hold the potting mix firmly in place

when the seedling is tapped out of the tube. Avoid seedlings with excessive growth of old root or if the root system has lots of curled and winding roots.

Seedlings should be thoroughly watered before being planted out and immediately following planting if possible.

Planting sites

Tree seedlings should generally be planted out in a manner to reproduce the natural vegetation zonation. Guidance can be obtained by observing similar undisturbed sites in the same district. Tree seedlings are not usually planted seaward of the crest of the foredune where the shifting sand levels can only be colonised by the herbaceous pioneer plants. The horse-tail she-oak (*Casuarina equisetifolia*) is the dominant tree species on the crest and landward slope of the foredune because of its tolerance of strong winds, salt spray and windblown sand. Banksia, wattle, tea-tree and other coastal species are generally planted in more sheltered dunal areas landward of the foredune crest.

Planting time

The combination of high temperatures and low soil moisture is the major cause of losses of planted out tree seedlings and time of planting should be planned to avoid these conditions. The period around April/May is generally good for planting in coastal Queensland but local monthly rainfall figures should be checked. Soil moisture should have built up over the wet summer months, and further showery

weather can generally be expected. The temperatures over these months are relatively cool and good seedling survival rates can be expected if planting occurs straight after good rain. There is much greater flexibility in time of planting if the seedlings can be watered during the critical establishment period.

Planting method

The following steps describe the procedure that is suitable for planting most types of plants used in dune management projects.

Step 1: The sand should be moist and the planting hole should be dug deep enough to allow the root system to be completely buried with about 5cm of sand over the top of the roots.



Step 2: The tree seedling is carefully removed from the container taking care not to damage the roots (the seedlings should have been thoroughly watered which helps to hold the root/potting mix complex together). The seedling is placed in position with the roots against the side of the hole to a depth as described in Step 1.



Step 3: The hole is filled around the seedling. If dry sand is present on the surface, avoid placing it in the hole close to the roots where it is important to retain maximum moisture. Place wet sand into the hole first.



Step 4: The sand is then firmly tamped down around the seedling to complete the planting operation.



If water is on hand, it should be applied to the seedling following the planting operation. On sands with water-repellent characteristics, it may be necessary to add a small quantity of wetting agent to the water to ensure thorough wetting of the soil profile.