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WALPOLE-NORNALUP NATIONAL PARK

Sand Dune Stabilisation Project

BACKGROUND

The sand dune erosion seen here resulted from careless use of four-wheel drive vehicles about five years ago.

As the only convenient foot access to Mandalay Beach is through the dunes at this point, erosion continued as a result of walking tracks and constant disturbance of the sand surface.

MONITORING

The National Parks Authority began monitoring the erosion in November 1979. Wind directions, speed, rate of shift of sand, amount of usage and other figures were obtained. It was found that in some parts of the blowout, erosion was occurring at the rate of up to 5 m per year.

ACTION

It was decided that as the National Parks Authority had the responsibility to maintain access to a popular beach, and try to retain a stable environment, that dune stabilisation would be undertaken. Work was to comprise three initial phases:

1. place steps down the foredune to the beach -
2. monitor the effects of these steps on the dune and public usage -
3. undertake a large scale stabilisation programme if needed.

It was determined after 12 months monitoring that full stabilisation was required.

THE PRESENT PROJECT

Two issues were involved; firstly, to trap and accumulate any sand being blown around in the funnel-shaped valley between the dunes. Secondly, to reduce sand movement on the more-or-less stable areas and to rehabilitate those areas with vegetation.

FENCES

The first part of this dual task was to erect slat fences. These are flexible, and have about 50% porosity to the wind, i.e. the slats and the spaces between them are about equal in size. This allows wind to pass through the fences (so they do not blow over) but about half the sand transported on the wind hits the fences, then falls to the ground. This sand builds up around the fence. If this proves effective, some of the fences will eventually be buried completely, and will then assist in reducing slumping of the sand by supporting it from beneath.

The fences are placed across the wind direction and about 6 - 8 times the distance apart as they are high. That is, 1 m high fences would be 6 - 8 metres apart. This spacing breaks up wind flow to just the right level, allowing the sand to drop. Too far apart and the fences do not reduce wind speed. Too close together and the sand between them scours out, forming hollows, and eventually the fences fall over. Spacing and effectiveness of the fences depends on wind speed, slope, wind direction and grain size of the sand particles, hence they must be designed specifically for any given set of conditions.

PROTECTION OF SLOPES

Slopes and sand surfaces which are fairly stable and could revegetate if they were not continually eroded, were identified. Cut scrub, mostly local Peppermint tree (Agonis flexuosa) was laid over these surfaces. A great deal of this scrub-laying was carried out by students of Walpole Primary School and their contribution is much appreciated. This scrub will reduce wind speed at the sand surface, help to trap sand and wind-blown seeds, and drop its own seeds onto the soil. Eventually we hope to seed the areas with native species or plant Marram Grass.

PATHWAYS

Pathways which can be raised as sand accumulates are being installed across the dunes. They are designed to trap sand and then be lifted to a new level as they become buried. You will assist greatly by keeping to these paths.

FINAL STEPS

It is the Authority's intention to plant Marram Grass in the blowout behind the dunes, and eventually supplement this with native shrubs.

With careful management and assistance from the caring public in keeping to pathways, not littering and by being aware of their environment, the National Parks Authority hopes to retain the Mandalay Beach area as an attractive, scenic location for all time.

The Authority hopes your visit to this National Park is a pleasureable one.

FURTHER INFORMATION IS AVAILABLE FROM -

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