

## **Developing community-based monitoring guidelines for coastal sand dunes**

**The Dunes Trust has recently initiated a project to develop national community-based guidelines for monitoring coastal sand dunes and restoration programmes. The aim is to provide Coastcare groups and managing agencies with scientifically robust, easy-to-use guidelines for quantifying the status of their dunes and to determine whether restoration outcomes are meeting objectives. The 3-year project is funded by the Ministry for the Environment's Community Environment Fund with cofunding and support from the Dunes Trust and its research partners including councils, the Department of Conservation and Coast Care groups.**

### **Background**

Coastal dunes are amongst the most modified and degraded of all the major ecosystems in New Zealand. Modification has included almost total removal of original dune forests, extensive disruption and loss of other native dune vegetation, introduction of a wide range of competing exotic plant species, human-induced disruption of stabilising vegetation, grazing and browsing animals and extensive coastal subdivision and development.

The combined effect of these pressures has been significant. For instance, original native duneland vegetation sequences from sand binding species on the dune face through to mature forest remain in only a couple of sites on the east coast of New Zealand. The areas of natural duneland ecosystem that remain are typically either narrow truncated ecosystems or small isolated fragments often subject to impact and encroachment from adjacent landuse. Accordingly, natural coastal duneland ecosystems have been identified as a national priority for protection and restoration.

Restoration of coastal dune ecosystems using indigenous and community-based approaches was initiated in New Zealand in the early 1990's. There are now Coast Care and management agencies working in partnership to restore natural dune ecosystems throughout New Zealand. The Dunes Trust provides support for this work including the development of guidelines for restoration and organising annual national conferences to assist networking and sharing of information.

While considerable progress has been made with restoration there are as yet no national guidelines for surveying and monitoring coastal sand dunes and restoration programmes.

### **Why do we need monitoring guidelines?**

Most monitoring of dune condition and vegetation cover undertaken by community Coast Care groups is based on non-quantitative observations by members. This often anecdotal information is sometimes collected over long timeframes and over substantial areas of dunes and beaches, but seldom formally recorded other than, for example, comparing earlier photographs with current states of the dunes. Little quantitative data is collected on a formal or regular basis, especially on vegetation cover on coastal dunes or on monitoring the performance of restoration programmes.

Assessing the state of the beach and dune system and monitoring changes over time are essential requirements for any dune restoration programme. Improved monitoring is critical to enable communities to illustrate and measure the success of their work and to gaining improved understanding of best practices for their particular situations.

There needs to be a range of surveying and monitoring options for communities to accommodate the various different situations and objectives at each site and to match their resources and commitment. In addition, community-based monitoring methods should be aligned wherever possible to more intensive systematic monitoring options that may be undertaken by agencies on a regional or national basis.

This project aims to provide local community and interest groups including managing agencies with methods for monitoring the state of their coastal dunelands and to determine the success or otherwise of their restoration initiatives

### What this project is about:

This project works with community groups, councils, the Department of Conservation and other interest groups to develop a range of scientifically robust and easy-to-use methods to monitor effectiveness of dune restoration and changes in the state of the dune environment over time. The three-year project involves several components:

- Consultation with coastal communities and managing agencies to identify their needs and priorities to be addressed by a coastal dune monitoring system that will be practical and effective.
- Identify and review the range of dune monitoring and surveying work presently conducted nationwide and elsewhere, including relevant research, identifying strengths and weaknesses of existing approaches.
- Design and trial methods for field-based monitoring of two aspects:
  - **Dune condition** – e.g. vegetation cover, dune profiles, impacts of users and pest animals; and
  - **Dune restoration initiatives** – measuring effectiveness of planting, maintenance, pests...
- Design and develop easy-to-use interactive systems for data management aligning where possible with existing appropriate systems (e.g. NatureWatch) for storage, retrieval, analysis, interpretation...

### How you can become involved?

We have already identified and initiated project planning with some Coast Care groups and managing agencies in several regions for setting up and testing methods for monitoring both dune condition and restoration activities. This includes several sites and interested groups in Northland, Auckland, Waikato, Wellington and Canterbury regions.

If your group or agency is keen to be involved in this project please contact the Dunes Trust Coordinator ([info@dunestrust.org.nz](mailto:info@dunestrust.org.nz)) or the Project Manager David Bergin ([davidbergin.eri@gmail.com](mailto:davidbergin.eri@gmail.com)).

### Take home message!

The resounding message from community representatives keen to undertake monitoring of their dunes and restoration programmes is that a monitoring system has to be practical and rapid. As stated by Dr Ian Atkinson, foremost ecologist renown for nationwide vegetation surveys:

***Important as monitoring is, if the procedure becomes too complex and, therefore, too demanding of time, it will not be done!***



This new Dunes Trust project aims to provide community groups with user-friendly guidelines for surveying the vegetation cover and condition of their dunes and for monitoring the success of their restoration programmes.