

What is a Sand Dune?

A sand dune is a bank of sand piled up at the back of a beach by an on-shore wind, a wind blowing from the sea to the land. Sand dunes are 'dynamic', but often unstable and vulnerable environments. Dunes can be home to rare species of plants and birds.

How are they formed?

They form from wind-blown sand that is initially deposited against an obstruction such as a bush, driftwood or rock. As more sand particles are deposited the dunes grow in size, forming rows at right angles to the prevailing wind direction. If vegetation, such as Marram Grass and Sand Couch, begins to grow on the dune its roots will help to bind the sand together and stabilise the dunes.

For dunes to form there must be a supply of sand, a means of transporting it, and somewhere for it to be deposited more quickly than it is eroded.

At low tide, deposits of sand in the inter-tidal zone (between the high and low tide marks) may be exposed and start to dry. The dry grains of sand can then be transported by the wind. If the wind blows towards the land, sand will be transported up the beach and beyond the high tide mark.

When the dried sand reaches the top of the beach it can be trapped by debris such as driftwood, dead seaweed or rocks and pebbles. If the sand is not eroded again it may become colonised by small plants, or trap other wind-blown debris, increasing its size and thus trapping even more sand.

As the dunes grow in size they are able to catch more of the sand blown across them by the wind.

Sand dunes can be important ecosystems supporting unique plant life and a healthy population of small animals and insects.

A typical well established Sand Dune



Marram Grass



The dense, grey-green tufts of Marram Grass are a familiar feature of our coastal sand dunes, it plays a vital role in stabilising the dunes, its fibrous, matted roots binding the sand down. Well-adapted to a harsh life at the coast, its glossy, rolled-up leaves protect it from drying out.

Gorse

Gorse is a typical and an important shrub on dunes as it provides shelter and food for many insects and birds. However, it can quickly become invasive in an area, forming dense, impenetrable stands and so needs managing.



How can dunes be managed?

- Vulnerable areas and areas recently planted with marram grass (which is used to stabilise the dunes) can be fenced off to limit access and damage.
- **Boardwalks** can be laid through the dunes to focus tourists onto specific paths.
- **Car parks** are provided and people are not permitted to drive onto the beach
- Tourists bring their problems such as fire hazards (caused by barbecues and cigarette ends). **Fire beaters** can be positioned within the dune area in case of a fire.
- Facilities including a shop, café, toilets and litter bins are usually provided near the car parks to focus tourists into one area.
- Information boards educate visitors about the environment and how they can help to protect it.

