The Importance of Dune Vegetation
- Gold Coast -

September 2008

Most beaches in Queensland are backed by vegetated sand dunes. These dunes are very effective coastal protection features. They absorb the erosive energy of waves generated by cyclones and storms and are reservoirs of sand to replenish the beach during periods of wave erosion. Vegetation on the dunes traps and holds sand blown up from the beach. This aids dune build-up and stops sand from being blown inland and lost from the active beach and dune system.

Dune Vegetation Importance

In an urbanised environment such as the Gold Coast, vegetated dunes play an especially vital role in coastal processes. By trapping windblown sand they form barriers that protect hind-dune areas from sand inundation, salt spray and sand blast. The sand reserves held in dunes replenish beaches that have been eroded by wave attack.

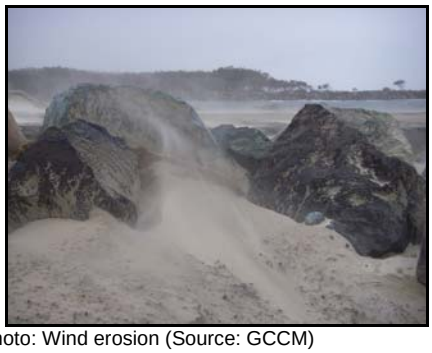

Photo: Wind erosion (Source: GCCM)

Dunes and their vegetation can be damaged by many natural forces such as waves generated by cyclones and storms, saltwater inundation, strong winds and sandblast, droughts, fires and by insect and parasite attack. Many human-directed activities including grazing, burning, sand mining, urban development and pedestrian and vehicular traffic have also contributed to the damage and destruction of vegetated dunes. Major threats to Gold Coast dunes include beach front development, beach access, dune vandalism, dune encroachment and fire as well as weed species, which are often garden escapees.

Following damage to the dune vegetation, areas of bare sand are left vulnerable to wind erosion and often develop into blowouts. Sand blown landward from the beach is no longer trapped by dune vegetation and is free to blow inland and be lost to the dune system. The volume of sand retained near the beach decreases and allows storm waves to travel further inland, accelerating rates of beach erosion.

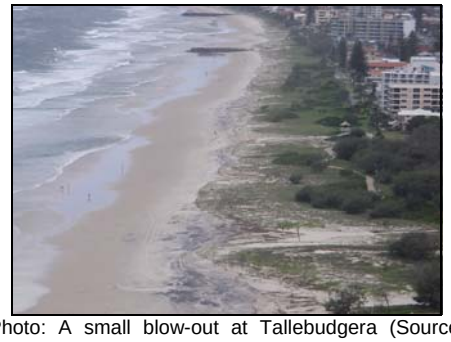

Photo: A small blow-out at Tallebudgera (Source: GCCM)

Dune Plants

Vegetation on the beach and dunes tends to occur in zones, according to the degree of exposure to harsh coastal conditions.

Closest to the sea is the pioneer or primary zone, extending landward from the debris zone at the top of the beach in an area called the foredune or frontal dune. It is in this area where dune vegetation is most important, as the development of a dune begins in the primary zone.

Photo: Spinifex – *Spinifex sericeus*, and Coastal She-oak – *Casuarina equisetifolia* (Source: GCCM)

Primary species create and develop a better environment for secondary dune vegetation to establish, by trapping wind blown sand, helping to stabilise the dune, helping reduce the temperature of the sand, and the ability to fix nitrogen from the atmosphere.

An area will begin with a primary ground layer species such as Spinifex and Pigface and eventually mature into secondary dunes with Coastal She-oaks, Banksia, Wattles, and many more.

BeachCare Program

Griffith Centre for Coastal Management facilitates the City's BeachCare program that provides opportunities for the community to donate their skills, enthusiasm and labour to dune restoration works. In addition, Gold Coast City Council undertakes dune restoration through dune contractors. These contracts often include community days, which are opportunities for residents of the surrounding area to get involved in dune restoration works.

BeachCare activities include:

1. Planting of new dune plants
2. Removal of weeds
3. Native and weed species identification
4. Rubbish removal
5. Community involvement tasks
6. A detailed vegetation plan for each area

Contact Information

For any further information on coastal dunes or to join a BeachCare group please contact GCCM on gccm@griffith.edu.au or (07) 55528506.

For additional information sheets on Gold Coast sand dunes see our website www.griffith.edu.au/coastal-management.

	Name	Description	Habitat
	*Spinifex sericeus* **Spinifex Grass**	Leaves silvery-hairy. Male and female flowers on separate plants. Female flowers of many long-pointed bracts that form a 'roly-poly'.	Common on southern and east coast dunes. Useful for sand stabilisation.
	*Carpobrotus glaucescens* **Pigface**	Prostrate, Spreading. Leaves triangular in cross section, fleshy. Edible fruits.	Common in SE Queensland near coast
	*Casuarina equisetifolia* **Coastal She-oak**	A graceful, weeping tree up to 10 m tall. Fine rigid branchlets are needle-like and jointed with tiny teeth. Seeds found in woody cones.	Heath and open forest on mid and hind dunes.
	*Banksia integrifolia* **Coastal Banksia**	Tree to 15m tall. Leaves are dark green with a silver white underside. Flowers yellow, spike cylindrical to 15cm long. Seed cone split opens to release paper thin seeds.	Widespread on eastern coastline.