Queensland's coastal sand dunes

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Coastal sand masses of southern Queensland

The southern Queensland region stretches from Coolangatta to the northern boundary of Burrum Shire and includes the nearby large sandy islands. The distribution of coastal sand masses in this region is shown in Figure 1 (adapted from Thomson, 1975), and the types of sand masses in the region are described below.

Beach and foredune

Sandy beaches along the coastline are interrupted by rocky headlands and by estuarine areas adjacent to river mouths. Fine-grained silica sand is blown up from the beach by onshore winds to form the foredune parallel to the shore. A narrow foredune strip occurs along most of the mainland coastline and backing beaches along the east coasts of the offshore islands.

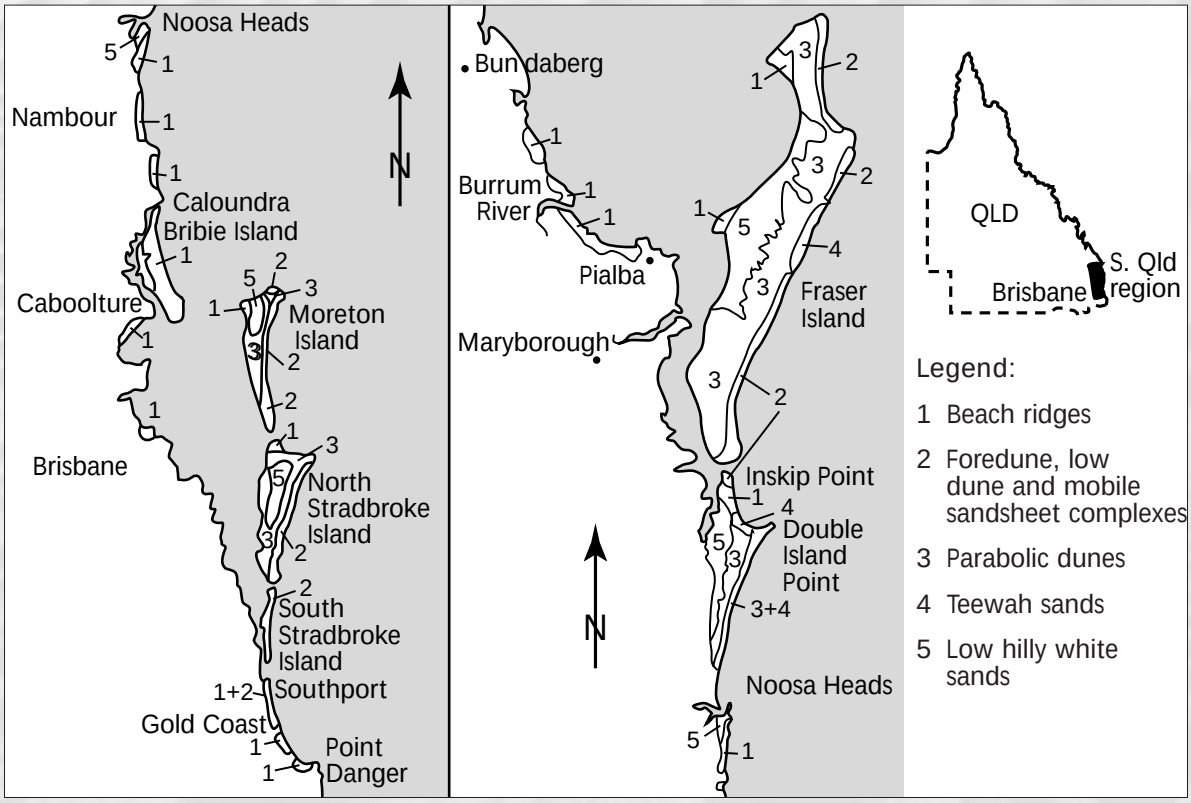

Figure 1. Coastal sand masses of southern Queensland (adapted from Thompson, 1975).

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Beach ridges

Series of beach ridges, generally less than 10m above sea level, occur at Bribie Island, Hervey Bay, Inskip Point and parts of the Gold Coast. They also occur on the northern coastline of North Stradbroke, Moreton and Fraser Islands. The crests of the beach ridges are usually aligned in conformity with the existing beaches. The beach ridges, consisting mainly of silica sand, cover a considerable range in age, as suggested by the differences in soil development from the coastline inland. The younger or more seaward ridges and swales show no soil profile development, while the older inland ridges and swales show progressive stages of podsol development.

Low dune and mobile sandsheet complexes

These complexes, consisting mostly of silica sand, are less than 30m above sea level and partially aligned to the south-east winds. They are features of South Stradbroke Island, the southern part of Moreton Island, and parts of the east coasts of North Stradbroke, Moreton and Fraser Islands. They are highly unstable, with many active blowouts grading into low parabolic dunes.

Parabolic dunes

Low parabolic dunes, aligned to the south-east winds and generally stabilised by vegetation, occur along the east coasts of the sand islands and in the Cooloola area on the mainland.

These parabolic dunes range up to 30-60m above sea level and are composed of silica sand. Small blowouts are not uncommon and some large ones occur - e.g. the Cooloola 'sand patch'. Soil development is minimal. High parabolic dunes, commonly 100-200m in height, occur on the larger sand islands and in the Cooloola area and are among the highest sand dunes in the world (e.g. Mt. Tempest on Moreton Island is 281m high).

Teewah sands

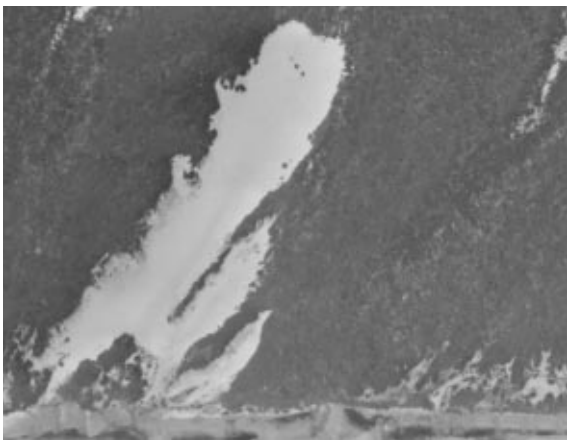
The Teewah sands consist of accumulations of multicoloured (iron-stained) sands which are included as gigantic lenses within the parabolic dunes. They are exposed along the Cooloola coastline, the east coast of Fraser Island, in small areas on Moreton Island and on the mainland south of Noosa Heads. The high parabolic dunes and Teewah sands accumulated during glacial periods over the last million years when sea levels were lower than at present.

Rolling to low hilly white sands

Thick accumulations of white, almost pure silica sands occur mainly as rolling and low hilly areas along the western and northern margins of all the large, high parabolic dunes of the offshore islands. They are also found to the west of Double Island Point, to the south of Noosa Heads and in the Cooloola area.

Reference: Thomson, C.H. (1975)
Coastal areas of southern Queensland: Some land-use conflicts.
Proc. R. Soc. Qd 86 (18):109-20

Foredune and low dune mobile sandsheet complex on North Stradbroke Island.



Blowout development in a system of low parabolic dunes on Fraser Island.