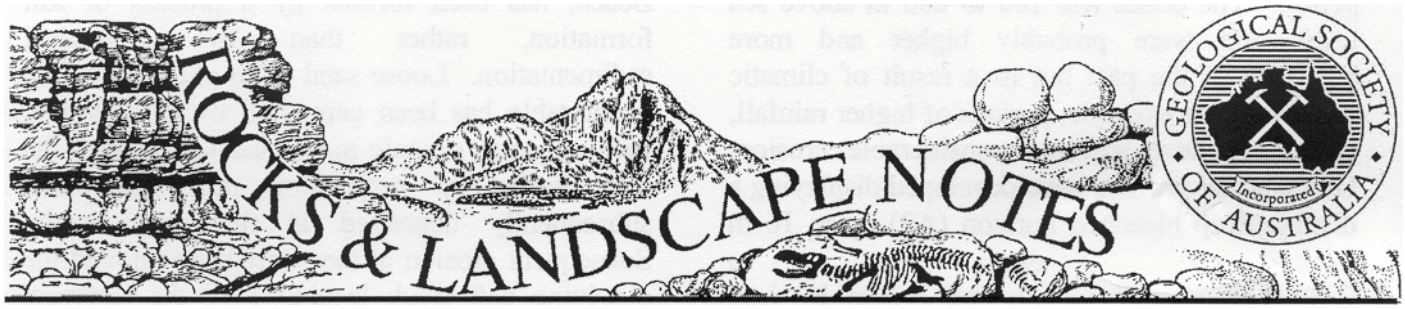

BRIEF BACKGROUNDS

COOLOOLA NATIONAL PARK

By David Trezise

The bedrock to the Cooloola National Park region consists of sedimentary and minor volcanic rocks deposited in the Maryborough Basin, a large area of crustal subsidence in Jurassic to Cretaceous times (210 to 100 million years ago). This basin extended at least 250 km from Coolum in the south to Baffle Creek near Bundaberg in the north, and may have extended some distance east of the present coastline. These sediments have been grouped into three units, only one of which, the Myrtle Creek Sandstone, outcrops significantly in the Park region. It consists of interbedded sandstone, siltstone and shale, overlain by quartz sandstone, which were deposited on ancient flood plains and in braided streams. These rocks form low undulating hills west of the Noosa River. Subsequent to their deposition the rocks were folded and faulted by earth movements; broad open folds can be seen in road cuttings along the Tin Can Bay road, near the intersection with the Rainbow Beach road.

Rocks of another unit of the Maryborough Basin, the Grahams Creek Formation, outcrop at Double Island Point. They are dark grey hard volcanic tuffs and lavas. They have been dated by radioactive isotope methods as being 133 million years old (Cretaceous).

Basalt lavas, the remnants of more extensive basalt flows erupted about 25 million years ago, form resistant caps to the Wolvi Range plateau, just west of the Park. Mount Coondoo may have been one of the centres of eruption of these lavas.

The Como scarp is a Cainozoic erosion feature cutting back at the divide between the coastal streams and the Mary River catchment.

East of the Noosa River and Tin Can Inlet, the ancient sediments and volcanic rocks are buried by the Cooloola sand mass, which extends for some 60 km along the coast from Teewah to Rainbow Beach. It reaches inland up to 17 km and can attain a height of 240 m. Similar sand masses form Fraser, Moreton and Stradbroke Islands.

The sand mass was built up by progressively overlapping systems of sand dunes. This quartz sand was eroded from granites and sandstones of northern NSW and southeast Queensland, transported to the coast by rivers, and then northwards by ocean currents. Anchor points such as rocky outcrops encouraged sand deposition along the coast. Subsequent sand movement up the beaches by the action of waves and wind formed coastal foredunes. Blow-outs, or breaks in the foredunes, enabled sand to transgress inland until stabilised by vegetation. These blow-out features have a characteristic "U" or "V" shape and are termed parabolic dunes. All dunes are modified by erosion from rain and to a lesser degree wind. The effects of erosion are more pronounced in older dunes.

Several units are recognised in the Cooloola sand mass. The four oldest dunes units, reaching well back into the Pleistocene about 112 000 to 143 000 years ago, were formed when sea levels were probably higher during the last interglacial period. The dunes rise 100 to 200 m above sea level, and were probably higher and more extensive in the past but as a result of climatic variations, for example, periods of higher rainfall, the dunes have suffered considerable erosion. Obvious soil profiles have developed displaying a distinct deep bleached horizon (A2) up to 16 m thick over a B horizon stained yellow and brown by iron compounds and darkened by humic materials leached from above. Coastal erosion has exposed these coloured sands at Teewah.

Younger parabolic dune systems were deposited within the last 4000 years (Holocene) after the most recent glaciation and its associated lower sea levels. These dunes form a thin veneer (less than 50 m thick) over the multi-coloured sands of older buried parabolic dunes. They comprise yellow-brown sand, and lack the strongly bleached A2 and stained B horizons of the older dunes because insufficient time has elapsed to form such a soil profile. Blowouts are common; the Cooloola sand patch being an example of quite a large blow-out dune.

The Cooloola sand mass is highly porous, enabling rain water to travel easily downward to accumulate in a saturated zone at depth, the top of which is called the water table. It is estimated that the volume of water stored in these sands is in the order of 9000 million mJ. It is very 'soft' with few dissolved solids. Locally the groundwater is black in colour due to organic staining. Studies by CSIRO have shown that these compounds are rapidly absorbed by the yellow-brown sands, producing clear, uncoloured water. In areas where the water table is higher than the ground surface, springs may be developed, for example, Kings bore. The small freshwater lakes of Lake Poona and Lake Freshwater, and Browtha Waterhole, formed as a result of young parabolic dunes transgressing older valley floors, thereby blocking them. Webbers Swamp is probably the remnant of a much larger ancestral lake which has since been breached by drainage of the Noosa River .

The black sandrock or coffee-rock at Kings bore, Freshwater Creek, and Carlo Point, Rainbow Beach, has been formed by a process of soil formation, rather than by geological sedimentation. Loose sand at an old level of the water table has been cemented by dark brown, carbonaceous, organic matter carried through the soil profile by percolating rain water and subsequently deposited at the water table. Subsequent erosion at the coast has removed the overlying soft sand, leaving only the resistant, cemented black material exposed. There may have been more than one period of sandrock formation.

A series of parallel beach ridges, less than 10 m above sea level, has been deposited south from Inskip Point. They represent successive foredunes stranded as the coastline has moved eastwards and comprise pale brown sand with rare interdunal estuarine deposits. In the last decade, there has been appreciable sand accumulation south of Inskip Point.

The Noosa plain is a flat to very gently undulating sandy plain flanking the Noosa River, its tributaries and associated lakes. At depths of 5 to 10 m, it is underlain by residual clays developed on the bedrock sandstone and shale. Lake Cootharaba, at one time, extended north of Harrys Hut. Lakes Cooloola (freshwater) and Como are delta lakes formed as the Noosa River deposited sediment in the larger ancestral Lake Cootharaba. Lake Como is still connected to Lake Cootharaba and is at the limit of the tidal influence.

Tidal mudflats. mangrove swamps. and grasslands occur in those areas protected from sand accretion and wave action. Such environments are present in Tin Can Inlet.