



Strong sea breezes have molded the growth of these Rottneest Island Cypress (*Callitris preissii*).
Photographer Judith Brown.

The Trigg Dune Reserves

URBAN BUSHLAND UNDER THREAT

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Urban bush areas are an important part of Australia's heritage. They give an impression of the original environment and as such are important for scientific, educational, recreational and aesthetic reasons. Rare and uncommon species of plants and animals may be conserved in these areas which form field laboratories for biology and geography students. Bushwalking, birdwatching and painting are enjoyable pastimes suited to urban bush areas. They also provide gardeners with examples of plants suited to local soils and climate. Through these activities the public is becoming more aware of the natural environment and the need to conserve this dwindling resource.

The three Trigg Dune reserves, totaling 125 ha, are located 12 km northwest of the city of Perth. The reserves extend from immediately behind the windswept foredunes of Trigg Beach, famous for its surf, back into suburbs that have sprung up over the past fifteen to twenty years. They have been nominated for listing on the Register of the National Estate.

The Dune reserves are significant because they are the last remaining area on the Perth metropolitan coastline where the vegetation sequence from beach dune colonisers, coastal heath and Acacia

thickets, through to Tuart and Jarrah/Banksia woodlands are present in good condition. The diversity of vegetation types, due to the range of soils, form a variety of faunal habitats.

Perth is built on a series of dune systems forming the Swan Coastal Plain. The development of these soils and landforms was described by MacArthur and Bettenay in 1951. In the east lie the leached grey Bassendean sands (250,000 years old). The yellow Spearwood dunes (100,000 years old) are overlain in the west by the white Quindalup dunes which have formed in the last 6,000 years along the coast.

Both the Quindalup and the Spearwood dune systems are represented on the Trigg reserves, a unique feature not duplicated in any other reserve in the metropolitan area.

There is much wildlife of interest to be seen on a walk through the dunes inland from the beach.

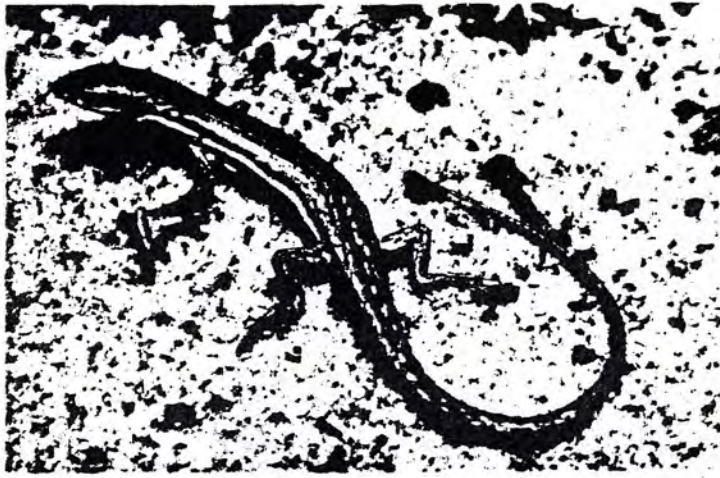
Stabilising the foredunes are a host of plants showing well evolved adaptations to this often windy, salt sprayed and hot environment. These include the succulent purple-flowered sea rocket (*Carkile maritima*), the large fleshy-leaved daisy (*Arctotheca populifolia*) and the hairy

spinifex (*Spinifex hirsutus*) which has extensive root systems: Nankeen kestrels (*Falco cenchroides*) hover overhead watching for unwary skinks (*Morethia lineocellata*) sunning on the sand.

Rising up the slopes of the secondary dunes is the low dappled mantle of coastal heath. The aromatic grey daisy-bush (*Olearia axillaris*), green coastal fan flower (*Scaevola crassifolia*), the fleshy green boobialla (*Myroporum insularis*) and the dark green *Spyridium globulosum* form the habitat of the white winged wren (*Malurus leucopterus*). Once common along the coast, this bright blue (male) fairy wren is restricted to areas, such as Trigg, which are large enough to support them.

A stand of bright green windswept Rottneest Island Cypress (*Callitris preissii*) is silhouetted on the dune crests. This population is one of three remaining on the metropolitan coast as too-frequent fires, firewood gathering and urban development have caused its decline elsewhere. This fire-sensitive species takes several years to mature reproductively. The rare, black striped burrowing snake (*Vermicella calonotus*) may be found in the fallen needles and moss surrounding the older trees. The dune sheoak (*Causuarina lehmanniana*) prefers the steep sides of older

Topperhead Skink (*Moroneia neocellata*) is found among ground litter and fallen timber and under the bark of the tuart. Photographer Greg Arnold.



Clematis microphila is a creeper common throughout the Reserves. It has white feathery seeds which give it its common name, old man's beard. Photographer Robert Powell.



The white winged fairy wren (*Malurus leucopterus*) was once common along the metropolitan coast but is now restricted to heath on large reserves such as Trigg. Photographers B. A. and A. G. Wells.

unes. Like the Cypress it is killed by fire and as a result is naturally uncommon in the metropolitan area. Both species have the potential as windbreaks in coastal gardens.

Where the limestone of the Spearwood dunes is exposed through the overlying Quindalup sands a quite different suite of plants and associated animals can be found. A healthy stand of *Dryandra sessilis* large enough to support breeding colonies of New Holland and Brown honeyeaters (*Phylidonyris novaehollandiae* and *Lichmera indistincta*). The red flowering cockies-tongue (*Templetonia retusa*), pink reedlike triggerplant (*Stylidium juncea*), yellow pea (*Gompholobium tomentosum*) and purple creeper (*Hardenbergia comptoniana*) add to the year-round display of wildflowers.

Indicating limestone at depth the majestic Tuarts (*Eucalyptus gomphocephala*) rise above the wattle (*Acacia rustellifera*) thickets and open mixed heath (*Calamagrostis quadrifida*, *Hibbertia hypericoides*

and *Acanthocarpus preissii*). Some individuals of this gum have suffered from too frequent fire, insect attack and changing watertable levels, but their staggs provide lookouts for Port Lincoln Parrots (*Barnardius zonarius*), White-tailed Cockatoos (*Calyptorhynchus funereus baudinii*), Pink and Grey Galahs (*Eolophus roseicapillus*) and Grey Butcher birds (*Cracticus torquatus*).

The track through the Acacia thickets passes by the ruins of a house and water tank, built in the 1930s as part of an unsuccessful coastal subdivision. Poor soils and isolation resulted in its abandonment in the 1950s. The area was first reserved in 1889 as part of a stock route which was used until 1894. The valleys containing the *Callitris* remained a Government reserve and were added to the whole reserve when it was set aside for Public Open Space in the late 1950s. Private land within the reserve was exchanged for more suitable building blocks inland.

The northern block of the reserve is quite different from the other two sandy dune reserves. Situated in a valley where the coastal sand has been blown further inland, the vegetation is governed by the shallow yellow-brown sands overlying limestone. Here the scattered tuarts have a mid-storey of Jarrah (*Eucalyptus marginata*), Marri (*Eucalyptus calophylla*) on *Banksia* woodland and an understorey of *Jacksonia* and *Daviesia* (Pea family) shrubs.

Regionally the Trigg Dunes complement the wetland reserves inland especially Star Swamp Reserve 1 km to the north. Together they display a wide range of ecosystems and play an important role in the movement of birds.

The pressures on the coastal reserves are many and varied. Rubbish dumping, weed invasion, erosion and feral animals are all interconnected problems and make management a difficult task. Efforts made by the local council to fence the reserves and maintain firebreaks have helped to preserve this fragile environment and draw attention to its value as a natural heritage.

The construction of a major road through the reserve is proposed. Such a road will fragment the dune communities and promote severe erosion as it is aligned with the prevailing southwesterly winds. Rehabilitation with species from adjacent communities could be difficult. The hydrology will be altered and an influx of weeds in the disturbed areas will increase the risk of fire. There are alternatives to this traffic management problem outside the reserves which, if implemented, could save the reserves for future generations.

Footnote

A severe fire on 8 and 9 December, believed to have been deliberately lit, burnt about three-quarters of the coastal dune reserve. This reduces the amount of brush material available for rehabilitation if the road is constructed in the next few years.