

# LIBRARY

Department of Biodiversity,  
Conservation and Attractions

This PDF has been created for digital preservation. It may be used for research but is not suitable for other purposes. It may be superseded by a more current version or just be out-of-date and have no relevance to current situations.

## VEGETATION AND FLORA

### VEGETATION

The vegetation of the Leeuwin-Naturaliste Ridge, on which the National Park is located, is controlled by two major influences, climate and geology/topography.

The climate is cold and wet in winter, rainfall averaging from 838 mm (33 inches) per year at Cape Naturaliste to 994 mm (39 inches) at Cape Leeuwin. There is also a small local variation, rain falling on the highest point of the Ridge being a little heavier than behind the Ridge, to the east. Additionally, there are generally at least 4-6 rainy days in every month. Temperatures are low for much of the year, the coldest month being

August with a mean of 11°C. Summer rarely exceeds 30°C maximum temperatures, the hottest month (January) having a mean daily maximum of only 23°C.

As a consequence of these factors, the overall climate is cool and moist throughout the year; ideal conditions for the development of dense forests and heavy undergrowth. Vegetation of this type is present, but is to a large extent modified in its density and structure by other considerations, such as geology, drainage and nutrients in the soils.

As described in the geology of the Park, the main rock types present are granite-gneiss and limestone.

The granite-gneiss breaks down to acid, often clayey and poorly drained soils, with relatively high levels of nutrients. The limestone in contrast produces alkaline, well drained and sandy soils with low nutrient levels. Thus, to a large extent, the distribution of the vegetation types is related to the rocks/soil on which they stand.

Further modification of the vegetation is caused by wind-trimming of the coastal scrub, resulting in low, compact heaths; the presence of water-courses, which favour sedges and ferns; and fire, which modifies the structure of the forests and scrub.

Major vegetation types represented in the Leeuwin-Naturaliste National Park are sand dunes covered with scattered shrubs or heath, Peppermint *Agonis flexuosa* woodlands or scrub, Jarrah *Eucalyptus marginata* woodlands (frequently in association with Marri *E. calophylla*), Banksia woodlands, Melaleuca woodlands and swamps.

The sand dune areas are mobile or semi-mobile limey sands, with a sparse cover of shrubs. On the beaches there may be Sea Rocket *Cakile maritima* with its narrow, divided

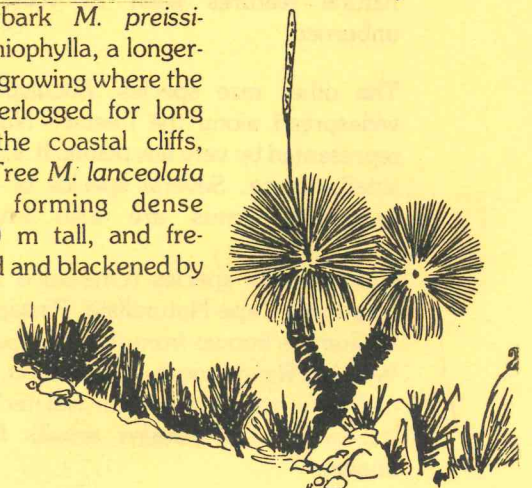
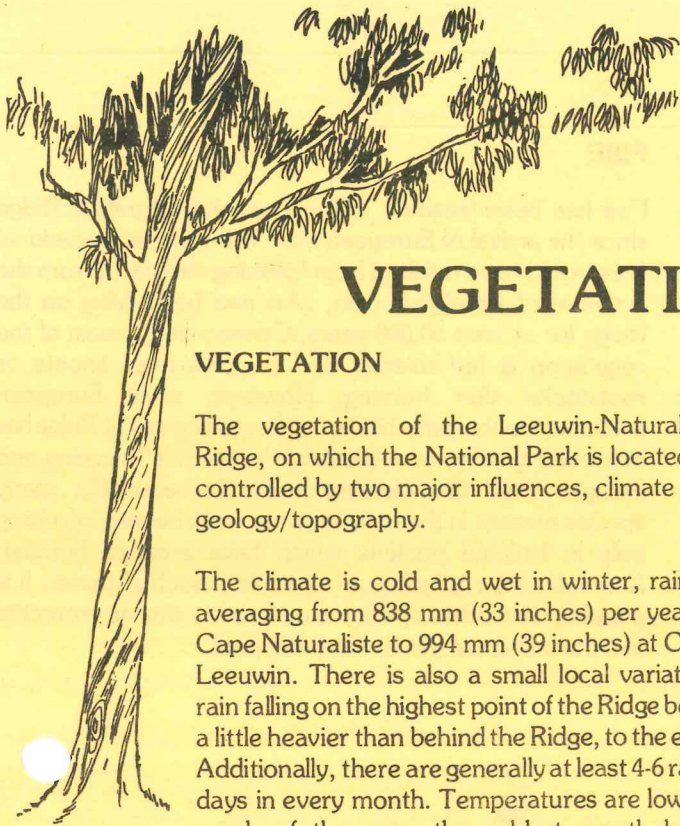
leaves and lilac coloured flowers, or the broad-leaved, attractive grey foliage of *Arctotheca populifolia*. This latter species is actually a native of South Africa, and was first recorded on the Western Australian coast at Bunbury in 1928. It is now widespread, and a valuable stabilising species in some areas.

Peppermint dominated vegetation varies from woodlands up to 20m tall to the same species as a low heath-like plant less than 0.5 m tall where it is trimmed by strong sea-winds. It grows on red and brown limestone-derived soils, deep white sands, limestone ridges and along peaty creek banks. Its adaptability to various soils assures a wide distribution throughout the Park. Numerous other plants occur in the understory layers, including Attenuated Banksia *Banksia attenuata*, Wattles *Acacia* spp, Native Buttercups *Hibbertia* spp, Zamia Palms *Macrozamia riedlei*, Blackboys *Xanthorrhoea preissii* and dozens of less conspicuous species.

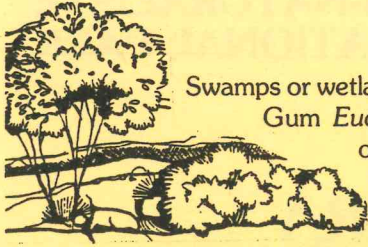
Jarrah and Jarrah-Marri woodlands cover the more inland regions, mostly outside the Park. Jarrah prefers more lateritic (ironstone, bauxite, gravel) soils, but where the soil is more sandy and deeper, Marri may occur in equal abundance. Understorey species may be similar to those of Peppermint woodland, but Snottygobble Tree *Persoonia longifolia* Hakeas, Bull Banksia *Banksia grandis* and Christmas Tree *Nuytsia floribunda* may be present.

Banksia woodlands are common but are frequently associated with Jarrah woodland. Where relatively pure Banksia stands occur, they are usually Attenuated Banksia, and Holley-leaf Banksia *B. ilicifolia*. Understorey is usually dominated by Blackboys and Zamia Palms as well as *Hakea*, *Calothamnus* (One-sided Bottlebrush), Stinkwood *Jacksonia furcellata* and many others.

Melaleuca woodlands, or paperbark woodlands as they are usually known, occur in wetter areas, or in thickets on sheltered parts of the coast. Wet areas may have Swamp Paperbark *M. preissiana* or *M. raphiophylla*, a longer-leaved species growing where the soil stays waterlogged for long periods. On the coastal cliffs, Rottnest Tea Tree *M. lanceolata* is common, forming dense thickets to 10 m tall, and frequently gnarled and blackened by fire.







Swamps or wetlands may be surrounded by Flooded Gum *Eucalyptus rudis* in the inland areas, or Peppermint towards the coast. Swamp Banksia *B. littoralis* is also common. Understories of wetlands are generally dense shrubs, sedges or Bracken Fern *Pteridium esculentum*, with occasional areas of open water.

## FLORA

Many of the common species have already been mentioned when describing the vegetation. However, there are probably several hundreds of species present along the Leeuwin-Naturaliste Ridge. An inventory survey has never been made, but about 200 species have been recorded during occasional visits.

Many species, although common, are of considerable interest. Examples are the Zamia Palm (actually a cycad, not a palm), one of numerous plants which uses bacteria in its roots to fix nitrogen from the air. Other plants which do this are the wattles and other legumes. The strange plant *Orobanche australis* or Broomrape is a leafless parasite on the roots of other plants. It stands to 30 cm tall, with brown, hooded flowers and a bulbous stem base, and is widespread both in the bush and in cultivated land.

Orchids are numerous, and include the Spider Orchid *Caladenia aphylla*, White Bunny Orchid *Eriochilus dilitatus*, Leek Orchids *Prasophyllum* spp, the Praying Virgin Orchid *Drakaea elastica*, Rabbit Orchid *Caladenia menziesii*, Cowslip Orchid *Caladenia flava*, Donkey Orchid *Diuris longifolia* and Jug Greenhood *Pterostylis recurva*. Some of these orchids are pollinated by male wasps, which mate with the flowers in mistake for the wasp females, which are closely resembled by the unusually shaped orchid flowers.

## RARE AND POORLY DISTRIBUTED PLANTS

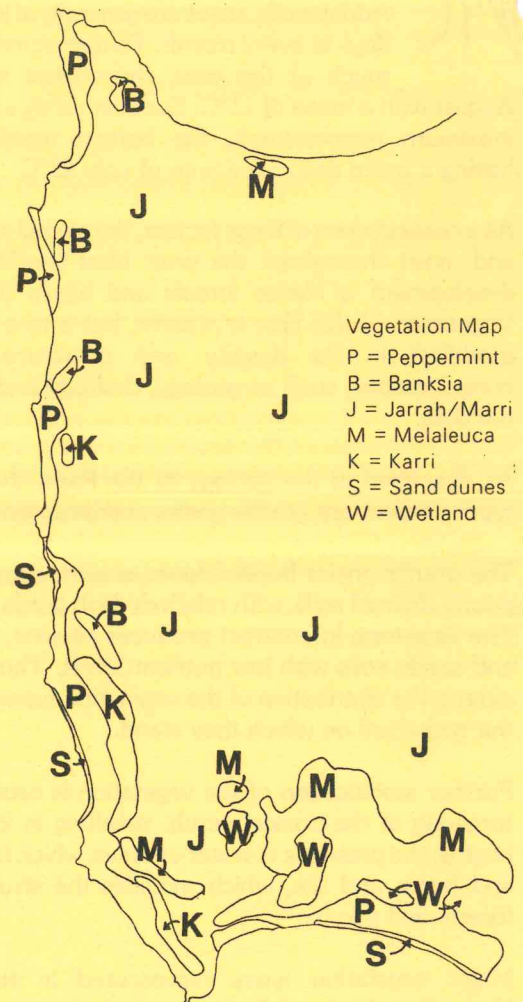
Two Gazetted Rare Plants are known from the Park: Augusta Kennedia *Kennedia macrophylla*, is a large-leaved creeper with red flowers up to 2 cm in length. The plant is fire-sensitive, and is now restricted to about 100 plants in a few small locations which have, because of natural features such as rock outcrops, remained unburned.

The other rare species, *Eucalyptus calcicola*, is fairly widespread along the Leeuwin-Naturaliste Ridge, but is represented by very few plants. It is a mallee-like eucalypt of small stature. Several species of poor distribution and uncertain status are also known. An unnamed

*Calothamnus* species (One-sided Bottlebrush) is known only from Cape Naturaliste. Pineapple Bush (*Dasypogon hookeri*) is known from the Ridge, and is also found in the Whicher Range south of Busselton, and on the coast south of Pemberton, but only in isolated populations. Unusual leaf-forms of *Dryandra sessilis* Parrot Bush are also known.

## FIRE

Fire has been frequent in the Leeuwin-Naturaliste Ridge since the arrival of European man. Prior to this, occasional fires would have resulted from lightning strikes, or from the activities of Aboriginal man, who had been living on the Ridge for at least 30,000 years. Consequently, most of the vegetation is fire tolerant and regrows from shoots or rootstocks after burning. However, since European settlement in the early 1800s, fire frequency on the Ridge has increased greatly, as a result of "protective" burning and escapes from land-clearing fires. Consequently, many species present in the early days may now be rare, surviving only in isolated pockets which have escaped burning. *Kennedia macrophylla* is an example of such a species. It is possible that other species may exist in similar protected locations and are yet to be discovered.



ISSUED BY THE DIRECTOR OF NATIONAL PARKS  
 C.C. SANDERS

NATIONAL PARKS AUTHORITY  
 HACKETT DRIVE  
 NEDLANDS  
 WESTERN AUSTRALIA 6009  
 2M 12/82

