

An Ancient Land

By Grant Wardell-Johnson and Vanessa Smith

Inlets and rivers, framed by towering karri and tingle forests; rugged coastline bordering the Southern Ocean; remote wilderness areas virtually untouched by humans. This is Walpole-Nornalup National Park, the southernmost national park in Western Australia.

AN Aboriginal tribe known as the Minang originally occupied the area from Albany north to the Stirling Range and west to the Shannon River and Broke Inlet. They hunted kangaroos and other animals; they built fish-traps in the estuaries and, presumably in search of weapon heads, quarried stone from the rocky cliffs. They called the area *nornalup*, meaning “place of the tiger snakes”.

Snakes or not, this is a place of loveliness and immense variety. It surrounds two estuaries (the Walpole and Nornalup Inlets), and two major rivers meander through the changing landscape. Hidden sandy beaches fringe the coast. High cliffs of limestone and granite are backed by dunes, and the deposits of alluvial sands of the interdune plains. Inland, on the southern edge of the great plateau of Western Australia, granite hills and ridges rise up to 100 metres above the surrounding swampland.

THE TOUCH OF THE PAST

In 1627 the *Golden Zeepard* (Golden Seahorse), a Dutch East India ship, sailed along the south coast and named Pt Nuyts after Pieter Nuyts, an official of the Dutch East India Company who was on board. Europeans took little interest in the region, however, until many centuries later. It was not until the 1850s that settlers from further inland began to drive cattle down to the coastal areas of the present National Park for summer grazing. Stock camps were established along the coast; part of one camp can still be found at Crystal Springs.

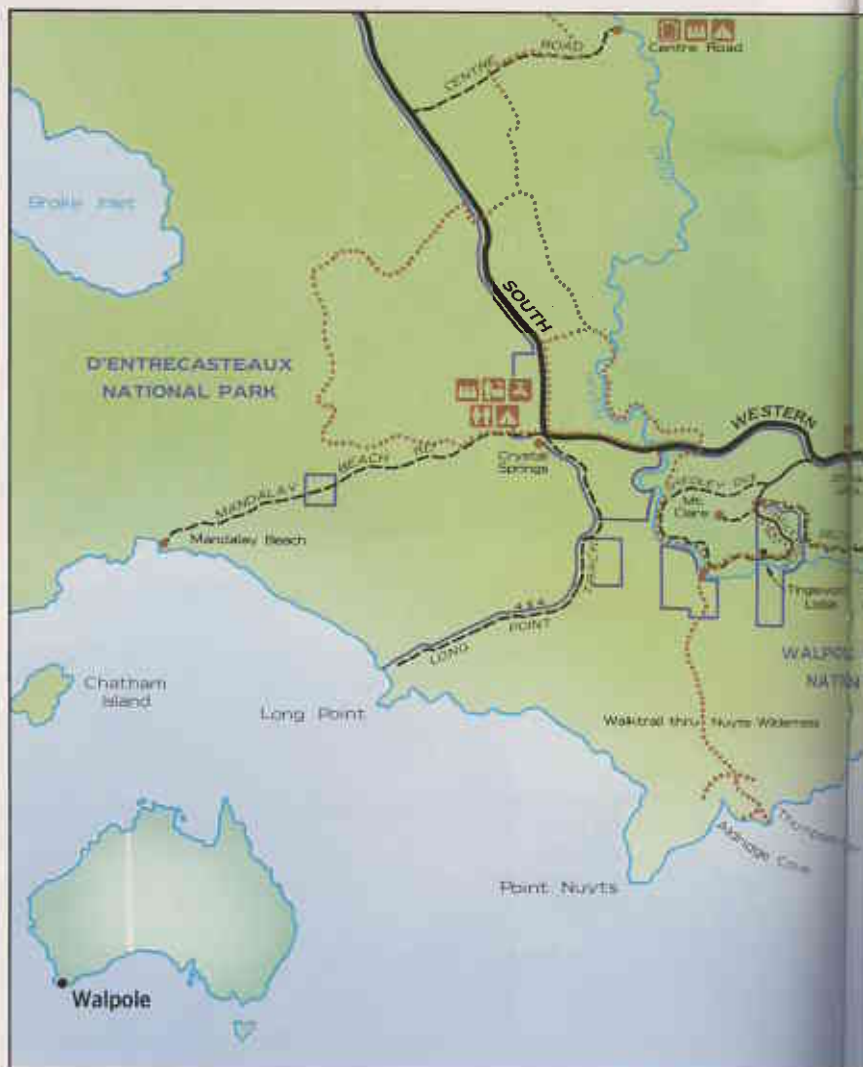
Permanent settlement began in 1910 when Frenchman Pierre Bellanger and his family took up land beside the Frankland River. The next year an English family, the Thompsons, settled at Deep River. The rest of the district was opened up for agriculture through land settlement schemes in 1924, 1927 and 1930.

Professor Ernest H. Wilson of Harvard University, who had seen many of the great forests of the world, visited the area in 1920 and remarked that “the scenery is just about as beautiful as you could have anywhere in the world... wonderful forest and river scenery, mountains, landscapes, seascapes, boating, fishing. The karri and tingle giants are the finest broad-leaved trees I have ever seen”. He prevailed on Premier Sir James Mitchell to make 12 000

hectares of the Nornalup area a national park. It was declared as such in 1921.

This is an ancient land. Sixty-five million years ago, when Australia was part of the supercontinent Gondwana, the climate was warm and continuously wet. A number of invertebrate species found in the Park are relics from this era. Walpole-Nornalup National Park still has the wettest and least seasonal climate in the South-West. This accounts for the many unique and unusual plants and animals, particularly invertebrates.

The Park’s remarkable variety of landforms and soils support a dramatic range of vegetation communities. Fifteen different plant communities, each with its own distinctive flora, have been identified. The narrow edges between shrubland communities and tall, open karri and tingle forest highlight the sharp boundaries between both the landform types and the communities. Study plots only 100 metres apart can include quite different groups of species.





The Mandalay, wrecked in 1911 off the Walpole coast, rises out of the sands every 10 years or so.

Photo - Kerry Cook ◀

Twisted sun orchid (*Thelymitra flexuosa*) grows in swampy ground of the lower South-West and flowers in October.

Photo - Grant Wardell-Johnson ▲

Newdegate Island at the mouth of the Deep River in Nornalup Inlet.

Photo - Cliff Winfield ▶





The brilliantly coloured flowers of red-flowering gum (*Eucalyptus ficifolia*) vary from crimson to pink.
Photo - Geoffrey Rogerson ▲

ENDEMIC EUCALYPTS

Walpole is a special place for trees. Four species of eucalypts grow within a few kilometres of Walpole and nowhere else in the world.

The red tingle (*E. jacksonii*) is one of the largest trees in the world; some specimens have trunks measuring up to 20 metres in circumference. This tree is only found within 10 kilometres of the coast between the Deep River and Bow Bridge. The yellow tingle (*E. guilfoylei*) is more widely distributed and grows in a greater range of soil types. It occurs near Denmark, Mt Frankland and the Beardmore Ridge. Red and yellow tingle usually grow in mixed stands with karri (*Eucalyptus diversicolor*). Rate's tingle (*E. brevistylis*) is closely related to the red tingle but is even more restricted. Its main populations occur in the Mt Frankland National Park but there are two small outlying populations in the Walpole-Nornalup National Park, both near the South Coast Highway.

The karri/tingle forest is rich in birdlife, particularly those that nest in tree hollows formed by fungi, termites and fire. Although fire is a rare visitor to the tingle forest, the large fires that have occurred this century (for example in 1937 and 1951) have been intense because of the high buildup of fuels on the forest floor.

The red-flowering gum (*E. ficifolia*) is almost confined to the sandy interdune plains of the Walpole-Nornalup National Park. Small outlying populations also occur in the north of the Park and in Mt Frankland National Park. It is a well-known street tree throughout the world, because of its beautiful flowers, moderate size and attractive shape.

Research on these eucalypts suggests they were all once more widespread during wetter and more even climatic regimes, many thousands of years ago.

RARE PLANTS

More than 650 plant species are found in the Park. Largely because of its unique climate, the Park has a high number of rare and geographically restricted plant species. At least 50 plants, ranging from tall shrubs to ephemeral herbs, are still undescribed and many have been collected only here. An unnamed species in the potato family (only known from 20 plants in a single study plot), several unknown *Agonis* taxa, two daisies and tiny herbs such as *Monotaxis* sp. and *Amperea* sp. are found only in the Walpole-Nornalup National Park and remain undescribed.

The Park is one of the richest areas in Australia for orchids - there are at least 90 species. Herbaceous perennials such as orchids, lilies and irises are a dominant part of the flora. Annuals, such as daisies, and small shrubs are also abundant.

INSECTS BEWARE!

Three families of insectivorous plants grow in the Park's peaty swamps. Each has adapted its own means of catching prey. The Droseras, for example, have sticky leaves like fly paper. The bladderworts have the most complex system - a series of vacuum cleaners to draw in the prey, each equipped with valves to separate the prey from the debris. These minute traps lie just below the soil's surface. Bladderworts are also known as fairies' aprons because of their attractive flowers. The pitcher plant is found only in the lower South-West and is common in the peaty swamps of Walpole-

The pitcher plant (*Cephalotus follicularis*) is found in peaty sites in the Park.

Photo - Grant Wardell-Johnson ▼



Nornalup National Park. It is the only species in its family. Insects caught in its vase-like trap, a modified leaf-stem, are unable to escape because of its wax-like surface and inward-pointing hairs at its rim.

MANAGEMENT ISSUES

There have been many environmental changes in the area around Walpole-Nornalup National Park since European settlement. Nearby private property has been cleared for agriculture and cattle grazing has had an impact on coastal dune vegetation. Timber cutting and regeneration has occurred in the forests of the district over many decades. These changes have led to the introduction of predators such as the fox and cat, disease and weeds. The way the Park is managed can, however, minimise the impact of undesirable changes.

A draft management plan for the Park is scheduled to be released for public comment in 1990.



Red tingle tree; the word 'tingle' comes from an Aboriginal term and 'red' is for the almost purple colour of its timber.

Photo - Cliff Winfield ▲



FLORA SURVEY

An extensive biological survey of Walpole-Nornalup National Park was conducted over three years (from 1985 to 1988) to specifically provide information for the management plan being developed for the Park. This is the most detailed survey ever carried out by the Department of Conservation and Land Management (CALM).

The study was designed to provide an understanding of plant communities and vulnerable species. Study plots in each community were marked and species within them recorded. Scientists returned each month to record the species in flower, heights of plants, vegetation density and fuels.

Vulnerable species and communities in need of special management attention were identified. These categories include species susceptible to dieback, and species with soft seeds and a long juvenile period which would make them vulnerable if fires were too frequent.

Species that dominate an ecosystem, those that fruit, flower or seed outside community peaks or those that produce copious flowers and nectar used by fauna may be extremely important to the community's continuation. Key species identified in the survey included the peppermint tree, holly-leaf banksia, oakleaf banksia, parrotbush and the dominant eucalypts.

Walpole-Nornalup National Park is framed by inlets, limestone cliffs, hidden sandy beaches and granite headlands.

Photo - Cliff Winfield ▲▲

From left: bracket fungi on a dead tree; swamp sun orchid (*Thelymitra cucullata*); a rare tail flower (*Anthocercis* sp.); and fungi growing on a rotting tingle log.

Photo - Grant Wardell-Johnson ▲

DIEBACK DISEASE

Protection from dieback is critical. Because many key species are vulnerable, the disease could have a major impact on a number of plant communities. There are several areas in the Park infected by dieback, so restricting its spread to other areas will be a major priority. This will affect the design and location of tracks and roads, fire management and suppression, and any other activities that involve soil movement.

VALLEY OF THE GIANTS

The Valley of the Giants, a State forest named for the massive size of the red tingle trees, will soon be added to the Walpole-Nornalup National Park. The trees have huge buttresses and many are over 400 years old. Often, the huge trunk has been hollowed out by fire. A tree can survive this massive injury as the living part of the tree is just below the outer bark rather than the centre.

Ferns, mosses and colourful wildflowers grow in the dense jungle-like understorey. Countless birds, including the New Holland and White-naped Honeyeaters and noisy Purple-crowned Lorikeets, are abundant - particularly when the karri, tingle or Chorilaena is in flower.

Amid the giant trees one can also examine the smallest worlds. Tiny fruiting fungi in many shapes and colours carpet the forest floor and a huge array of insect life lives in the deep, moist litter layer. *Descolea maculata*, one of many species of fungi that help the larger plants take up nutrients (they are mycorrhizal) is a member of a genus of fungi mycorrhizal on southern beech, a species extinct in WA for many thousands of years.

RECREATION

While the Valley of the Giants is a big tourist drawcard, many other activities can also be enjoyed in the Park, including fishing, boating, yachting, canoeing, photography, sightseeing, nature study, pleasure driving, bushwalking and camping. Recent visitor surveys have shown that fifty-eight per cent of Park users are from interstate and overseas. The number of Park visitors has trebled over the past 10 years and numbers may double within five years. The goal is to plan for increased usage while maintaining the Park's wild and pristine qualities.

A comprehensive recreation plan is being devised for the Park. Intensive use will be restricted to specific areas, such as the Valley of the Giants, while keeping large areas free of any development or formal access. The suitability of present recreation sites for existing and increased future demand is being examined. The provision of a quality experience for the large numbers of short-term tourists is being examined, while guidelines will be needed to ensure adventure-based tours such as bushwalking, four wheel driving,



Descolea maculata, one of hundreds of species of colourful fungi found in the moist forest understorey.

Photo - Grant Wardell-Johnson ▲

Boating on the Frankland River - an extremely popular and enjoyable recreational activity.

Photo - Robert Garvey ►

canoeing and camping have a minimal impact. More bushwalking and camping opportunities may be provided. There will be improved access to the coast, but the number of coastal tracks may be reduced.

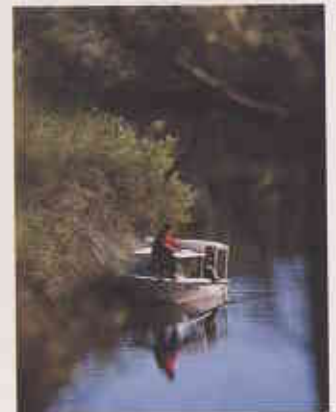
NUYTS WILDERNESS

In the south-western part of the Park about 5 000 hectares of near-pristine bushland has been set aside as a wilderness area for those seeking wild beauty and solitude. Access is by walking only; there are no interpretive signs, track markers or other facilities.

Nuyts Wilderness stretches from Deep River to the coast beside the Southern Ocean. The area contains high rock-capped hills, coastal dunes, deep forested gorges and a spectacular rugged coastline. Many plants and animals that occur here are found nowhere else in the world. As the area's popularity has grown, limits

have had to be placed on numbers of people and nights for camping. These are measures necessary to maintain the wilderness experience. The management plan for the Park will address these issues and ensure that the many rare and vulnerable plants and animals in the area are also protected.

The preparation of this management plan has involved the highest level of public participation of any plan in Australia. Visitor surveys, workshops and the involvement of the Walpole-Nornalup National Park Association will help to ensure that the many conflicting demands do not impede the high conservation value of the Park.





FAUNA CONSERVATION

Because of its relatively pristine state, its surrounding uncleared lands (including the adjacent Shannon-D'Entrecasteaux National Park), its mix of landform types and high and even rainfall, the Walpole-Nornalup National Park is important for fauna conservation.

Twenty-one species of native mammals, 109 bird species, 22 species of reptiles and 12 frog species live in the Park. One species of frog (*Geocrinia lutea*) is found only within 12 kilometres of Walpole and the short-nosed snake, square-nosed snake and crowned snake are confined to the lower South-West. The mud minnow, a species of fish, is found in peaty swamps that dry up over summer. It lies dormant in the mud during this time and reappears when winter returns.

The invertebrate fauna, although still relatively unknown, may yet prove to be the Park's most remarkable feature. The Park is an important refuge for species of invertebrates formerly more widespread in wetter climatic periods 65 million years ago, including many spiders, snails and the ancient *Peripatus*, which is a living link between worms and arthropods.

Because these organisms are restricted to the wet climate of the area, it is possible that they will be put at risk if major climate changes, such as those predicted under the greenhouse effect, were to occur.

RATS, POSSUMS AND BIRDS

The bush rat (*Rattus fuscipes*) is the most common mammal in the Park. There are also populations of the honey and pygmy possum, southern brown bandicoot, dunnart and phascogale. Many



From top left: Karri boronia (*Boronia gracilipes*); southern brown bandicoot; bush cockroach on granite; and the rare finch, the Red-eared Firetail.
Photos - Grant Wardell-Johnson
Bandicoot photo - Jiri Lochman ▲▲

Pygmy possum dwarfed by a gum leaf. It hunts for insects at night.
Photo - Geoffrey Rogerson ▲

mammals have declined in the area during this century including the chuditch, ring-tail and brush-tail possums, quokka and brush-tail wallaby; of these, only the quokka remains common in the Park. Predation by the introduced fox is considered to have been a major factor in the decline of these mammals.

Many bird species inhabit the Park's coastline, rivers, inlets, forest and heathland. Sites within the Park are included in the translocation program for the Noisy Scrub-bird, a species that has apparently become extinct in the area since European settlement. The only native finch found in the South-West, the Red-eared Firetail, a gazetted rare bird, is common in the karri/tingle forest and creeklines.

During the recent biological survey, animals were recorded every season. Pitfall traps were set for small mammals and

reptiles and cage traps for medium size mammals such as bandicoots and possums.

Observers counted birds in 90 locations. The counts were carried out in all seasons over two years and provided important information on the Park's bird communities. Volunteers worked with CALM scientists on bird observation and survey work. One even helped provide a list of 100 species of fungi that serve as indicators of environmental change in the Park. The information collected by these people will be a great help in preparing the Park's management plan.

The Walpole-Nornalup National Park is home to many species and communities restricted to the southern tip of the State. The challenge for the future is to protect this unique area, its unusual plant and animal life and the feeling of a wild and pristine landscape. □

LANDSCOPE

VOLUME 5 NO 2 SUMMER EDITION 1989/1990



Dolphins, whales and seals frequently strand along the WA coast. Find out who helps them and what they do on p. 10.



Powerful forces have formed the rocks and land surface of WA over billions of years. See p. 48.



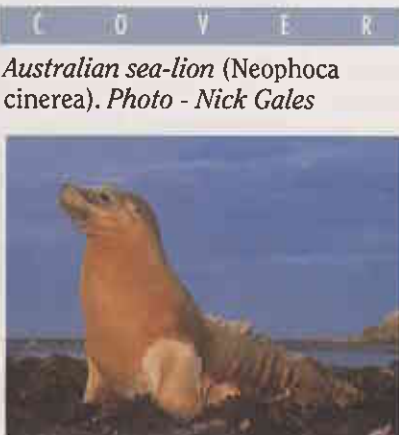
Why are the thousands of feral camels that roam inland Australia the scourge of the desert? Turn to p. 22.



Explore the fascinating subterranean worlds deep beneath the earth on p. 28.



Inlets and rivers, towering karri and tingle forests, rugged coastline and remote wilderness areas - Walpole-Nornalup National Park has it all. See p. 15.



Australian sea-lion (Neophoca cinerea). Photo - Nick Gales

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