

An underwater photograph of a coral reef. The water is a deep, clear blue. In the foreground, there are several large, rounded coral heads with a porous, greenish-brown texture. To the right, a diver is visible, wearing a black wetsuit and a scuba tank, with a diving mask and snorkel. The diver is positioned vertically, looking towards the camera. The background shows more coral structures and the surface of the water with some light reflections.

Captivating Ningaloo Coast

The natural wonders of the Ningaloo Coast are being nominated for World Heritage listing. But what exactly is it that makes this region so special?

by Samille Mitchell



With plummeting ranges and arid landscapes sweeping down to the sea, an ocean painted in a palette of azure blues and a riot of underwater life, the Ningaloo Coast is one of Western Australia's most treasured natural areas. This natural wonderland is home to the wildly colourful fish and corals of the Ningaloo Marine Park. The adjoining Cape Range boasts an extensive selection of underground caves that harbour some of the world's weirdest and rarest creatures. And every year this coast is visited by several hundred of the world's biggest fish—the whale shark (see 'The Ningaloo whale shark experience', *LANDSCOPE*, Summer 2008–09).

Such are its natural riches that the Ningaloo Coast is being considered for nomination for World Heritage listing. Such a title would draw international attention to the region, bolster tourism and ensure its outstanding values are enshrined for current and future generations to enjoy. The area being considered for nomination stretches from Red Bluff in the south, then north along Cape Range peninsula, encompassing Cape Range National Park and Ningaloo Marine Park but excluding the towns of Coral Bay and Exmouth.

But what exactly are the reasons for the World Heritage nomination and how has the area changed over time?



Ningaloo past

Ningaloo's shores and hinterland nurtured Aboriginal people for at least 32,000 years. The lands were the home of groups including the Jinigudira, Baiyungu, Ingarda and Thalanji people. Burial grounds, middens and fish traps remain in the area today and provide clues to the people who lived here long ago. Limestone rock shelters and caves contain evidence of past Indigenous occupation including rock art. Among this evidence are shell beads found at Cape Range that are dated to more than 32,000 years ago. These provide some of the earliest evidence for human decorative ornamentation in Australia.

The Ningaloo Coast is also rich in maritime history, with many wrecks littering its ocean floor. It was first sighted by Europeans when Dutch explorers sailed the Western Australian coast during the 1600s. The first recorded landing on the Cape Range peninsula, near where Exmouth stands today, was in 1618 when Captain Jacobsz and the crew of the *Mauritius* sailed too far south-east of Java.

Two centuries later Matthew Flinders produced the first published representation of North West Cape on a map in 1814 in his *A Voyage to Terra Australis*, and Nicolas Baudin called it 'l'extrémité nord-oeust' in his unpublished journal of 1801. His lieutenant Louis de Freycinet named Point Murat and the Muiron Islands on the same voyage, in 1803. In 1818, Australian Captain Phillip Parker King explored the region on the *Mermaid* and named Exmouth Gulf after Edward Pellew, First Viscount Exmouth (1758–1833).

Much later, pastoralism reached the area, with Exmouth Station starting in the 1880s and Yardie Creek Station in the early 1900s. Then, from 1913 to 1957, a whaling industry operated here—the remains of a whaling factory still stand at Norwegian Bay today.

Despite the activity occurring within it, it wasn't until World War II that the area started to receive more attention. The military 'Operation Potshot' started in Exmouth and the town served as an Allied base. The base was maintained after the war and is still used by the Royal Australian Air Force. Later, oil exploration started in the Cape Range and the American naval communications station 'Harold E. Holt' was commissioned in 1968.

Most of the early tourists were fishermen keen to extract a bounty from the then untouched ocean. While fishing



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Main Green turtle and diver at Ningaloo.
Photo – Alex Steffe/Lochman
Transparencies

Above Ghost crab.
Photo – Arina Abbring

Left Norwegian Bay whaling station.
Photo – Darlene Shepherd/Lochman
Transparencies

Below right Staghorn coral on Ningaloo Reef.
 Photo – Clay Bryce/Lochman
 Transparencies

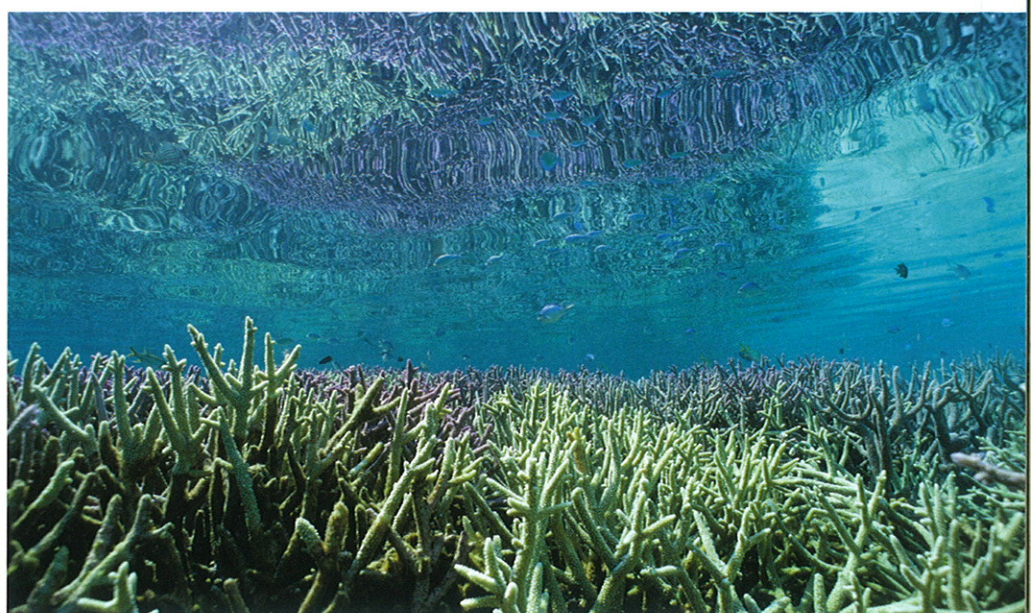
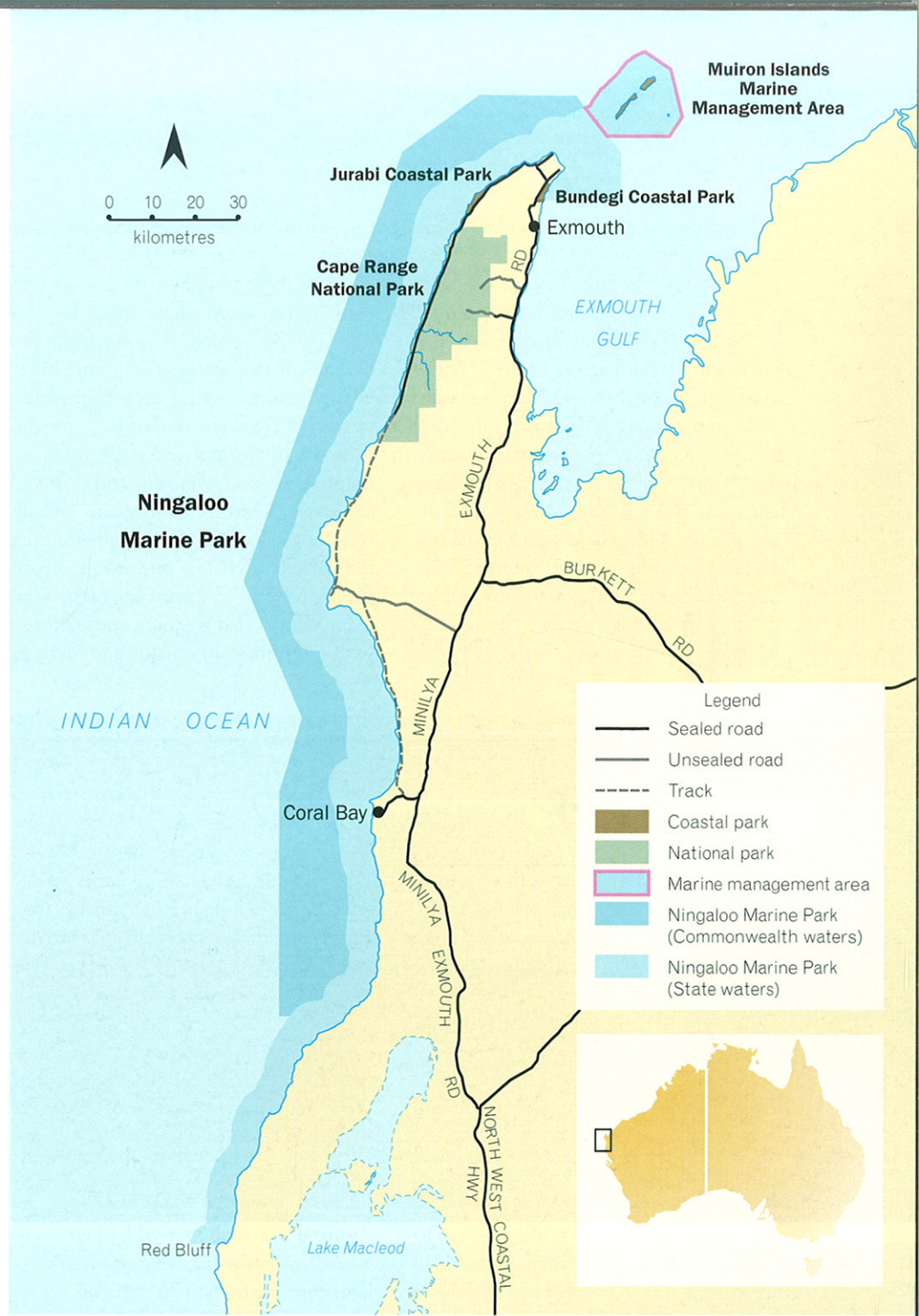
remains an attraction, these days tourists visit the area to experience its natural beauty. Whale sharks put Ningaloo on the national and international tourism radar in the late 1980s. The towns of Coral Bay and Exmouth are gateways to the Ningaloo Reef and both towns provide a wealth of nature-based activities ranging from swimming and scuba-diving to snorkelling with turtles, whale sharks and manta rays (see 'Marvellous mantas' on page 32).

Marine marvels

If the Ningaloo Coast is renowned for any one thing, it's the Ningaloo Reef. This treasure chest of marine life stretches nearly 300 kilometres in a north-south direction and is protected in the Ningaloo Marine Park.

Perhaps the thing that makes Ningaloo most treasured to visitors is its close proximity to the beach. In many places you need simply to step from the beach and wade a few metres to enter the fairytale-like world of the reef. Indeed, the Ningaloo Reef is regarded as one of the world's best developed coastal fringing reefs. It is the only large reef in the world found so close to a continental landmass.

The reef and its creatures owe their existence to the Leeuwin Current which flows down the length of the State bathing the area with warming waters and bringing tropical life into an area that would otherwise be a temperate zone. Dive among the coral castles and you are bound to revel in the kaleidoscope of life. Fortresses of staghorn coral protect Clarke's anemone fish (*Amphiprion clarkii*), reef sharks patrol the waters in ghostly grey forms and schools of snapper and emperor fish flash silver as they reflect the sunlight. The area is home to more than 200 species of corals, 500 species of fish, more than 600 mollusc species and more than 90 species of sea stars, urchins and sea cucumbers. It is also well known for its manta ray populations. You can join swimming with the manta ray tours to experience



the supreme grace with which these creatures glide through the water with the gentle flap of their wings.

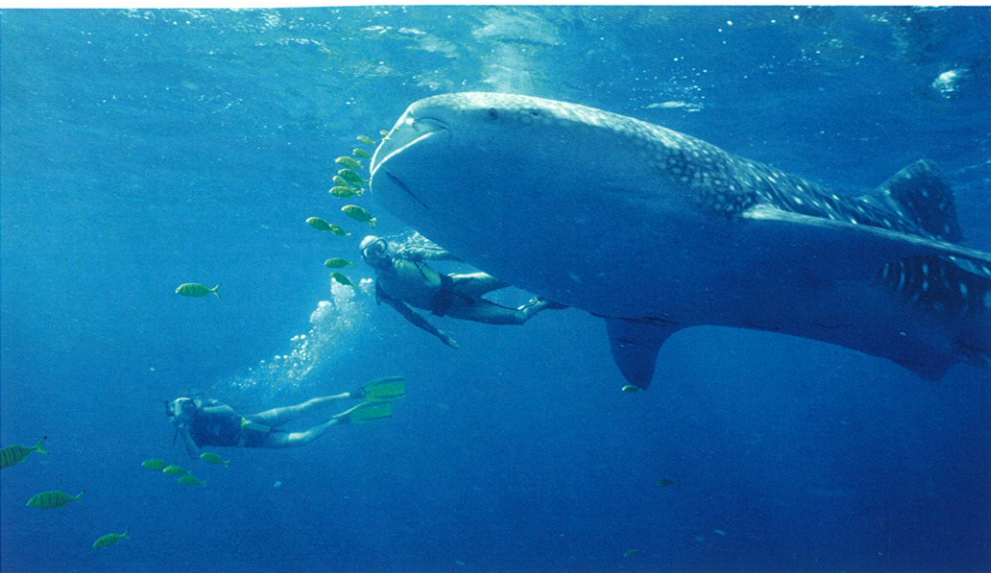
But of course the most famed of Ningaloo's marine creatures is the whale shark (*Rhincodon typus*). These gentle giants migrate to Ningaloo every year from about March to July. The only living representative of its family, the Rhincodontidae, the whale shark is the world's biggest fish, growing up to 14 metres long, and, although it is a shark, it is a filter feeder. As such, tour operators can safely offer snorkelling with whale shark tours along the Ningaloo Coast in season.

Marine mammals are also in plentiful supply here. About 1,000 dugongs (*Dugong dugon*) inhabit the region and eight species of whale and dolphin have been recorded, ranging from the blue whale (*Balaenoptera musculus*), killer whale (*Orcinus orca*), and humpback whale (*Megaptera novaeangliae*) to the Indo-Pacific humpback and bottlenose dolphins (*Sousa chinensis* and *Tursiops aduncus*). Visitors can join whale watching charters during the annual humpback whale migration from about July to September each year. Rare visitors also frequent these shores, with sightings of male and female

elephant seals (*Mirounga leonina*), false killer whales (*Pseudorca crassidens*) and beaked whales also recorded.

The shores of the Ningaloo Coast and the Muiron Islands Marine Management Area are also globally important habitats for three species of marine turtle—the loggerhead (*Caretta caretta*), green (*Chelonia mydas*) and hawksbill (*Eretmochelys imbricata*). You're bound to see turtles when walking the beaches or boating as they pop their heads above the water like a periscope for a breath of air and dive under once more.

The best way of learning about the turtles is to visit the Jurabi Turtle Centre during the nesting season from December to February. The centre features interpretive information on the turtles and is the launching point for tours to experience the nesting process or watch hatchlings emerging from the sand. You'll also learn fascinating facts about the turtles, such as the tendency for females to hatch and then take to the seas for several decades until reaching sexual maturity before



Left Whale shark.

Photo – Geoff Taylor/Lochman
Transparencies

Below Yardie Creek Gorge, Cape Range National Park.

Photo – David Bettini





Above Cape Range National Park.
Photo – Ann Storrie

returning to the same area where they hatched to lay eggs again themselves.

Terrestrial wonders

While it is the marine habitat for which the Ningaloo Coast is famed, the land also boasts a wonder world of fascinating, albeit lesser known, attractions, several of which are fundamental to the World Heritage nomination. The Ningaloo Coast

landscape is dominated by the Cape Range, which stretches 70 kilometres long and forms the spine of the peninsula that meanders towards North West Cape north of Exmouth. This rugged range has plateaus soaring 314 metres high and forms a spectacular landscape of canyons and gorges, particularly within Cape Range National Park. It is particularly beautiful at places like Shothole Canyon and Charles Knife Gorge where plummeting canyons and soaring gorge walls create a landscape characterised by raw, dramatic beauty.

These gorges, together with the varied habitats of mangrove, intertidal flats, sand ridges, alluvial plains and dune fields, support up to 630 species of plants, 84 reptiles, five amphibians, 200 bird species and 30 mammals. Among the mammal species is the threatened black-footed rock-wallaby (*Petrogale lateralis*), formerly widespread throughout much of WA, but now known only from Cape Range peninsula, Barrow Island, Salisbury Island (Recherche Archipelago), Calvert Ranges in the little Sandy Desert and scattered remnant colonies in the Wheatbelt. Take a boat cruise along the rust-red walls of Yardie Creek Gorge and you may be lucky enough to spot these endearing creatures perched seemingly precariously on the rocks high above. This boat trip is also an excellent way to admire the bird life.

Species like cormorants, galahs, and ospreys nest in the rocks along the gorge's colourful walls.

Hidden underworld

Perhaps more important to the World Heritage nomination than the sweeping landscapes of Cape Range is the landscape you can't see. For here an extensive underground karst system provides home to unique populations of cave-dwelling fauna. These fauna can be loosely divided into two groups—trogllobites (creatures which live in an amphibious or terrestrial lifestyle) and stygofauna (creatures which live fully in water).

At least 38 species of these invertebrates occur here, 10 of which are endemic to the Cape Range peninsula underground system and some of which occur nowhere else in the world but their own underground cave or flooded sinkhole.

The stygofauna include cave-dwelling crustacean species such as remipedes, amphipods, copepods and ostracods. Then there are the atyid shrimp, the blind eel of the *Ophisternon* genus, which occur nowhere else but the Cape Range Peninsula, and the blind gudgeon (*Milyeringa veritas*), which is widespread in the peninsula, but is almost unknown outside the peninsula.





Left Owl Roost Cave.

Photo – Geoff Taylor/Lochman
Transparencies

Below left Osprey.

Photo – Dave Watts/Lochman
Transparencies

Below Parrotfish.

Photo – Ann Storrie

shared the same habitats eventually dispersed to the farthest corners of the globe.

Take the remipede species (*Lasionectes exleyi*) for example. They occur in the Bundera Sinkhole on the coastal plain south of Yardie Creek, and they and their crustacean companions are the only known remipede community in the southern hemisphere or the Indo-Pacific region. Their closest living relatives occur in about seven subterranean communities in Mexico, Cuba, the Canary Islands off North Africa and the Caribbean and Mediterranean seas. While living in extreme isolation from each other today, they descended from marine creatures that once lived along the same coastline.

The story is similar with the troglobites, though their tale is more recent. These creatures tell the story of the break-up of Gondwana. From about 45 million years ago Gondwana had largely broken apart but what are now Australia and Antarctica were still joined. However, about 25 million years ago, as Australia continued to separate from Antarctica the landmass slowly drifted north, causing the once rainforest-cloaked land to become more arid. Many of the creatures from



Given the dark environments in which they live, most of these creatures are without pigmentation and are eyeless, or have only residual eyes.

But more remarkable than their weird looks are the clues these creatures hold to our ancient past. You see, these beasts of the underworld are most closely related to other creatures in far-flung corners of the globe. So just how did they evolve in such isolation? The forefathers of today's creatures once lived in the same area but about 180 million years ago the supercontinent Pangea started to break apart, bringing about the formation of the ancient Tethys Sea. Gradually huge land masses drifted apart and the creatures that once



Right Ningaloo Reef and Cape Range National Park.

Photo – David Bettini

Below right Dugong.

Photo – Geoff Taylor/Lochman
Transparencies

this ancient epoch became extinct, except in the last remaining rainforest areas in the north and north-east of the continent. However, some, like the troglobites on the Ningaloo Coast, retreated underground to escape the encroaching aridity. Today the troglobites at Ningaloo are most closely related to rainforest fauna living in leaf litter in north-eastern Australia—their distant cousins.

Window to ancient times

The limestone geology of the Cape Range also helps paint a picture of the evolution of life along the Ningaloo Coast. Much of the Cape Range is the remnant of ancient marine deposits which gradually emerged from the sea after massive tectonic forces folded the earth and created a range above the ocean. In more recent geological time, changing sea levels have created four wave-cut terraces—geological features which mark ancient shorelines—which are clearly visible to those in the know. By examining these terraces and the fossil life within them, scientists can gain an understanding of the coral reef creatures that lived here at different points in time—a virtual museum of coral reef evolution over the past few million years.

Such a feature is all the more remarkable when you consider it in juxtaposition to the modern-day reef. It offers the unusual chance to witness the chronological evolution of landscapes and life forms over the years, from the uplifted ancient marine environments frozen in stone which now house mysterious underground fauna, to the abundant tropical life of modern-day Ningaloo Reef. With marine reserve and national park protection, and possibly World Heritage listing in the future, we can live with the confidence of knowing this special area will still be there largely unaltered for future generations to enjoy.



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It is the role of the Australian Government to submit the Ningaloo Coast World Heritage nomination. The State Government supports the nomination and is liaising with the Australian Government to prepare the nomination. It is expected that the nomination will be submitted to the United Nations Educational, Scientific and Cultural Organisation (UNESCO) in 2010. Assessment of nominations takes at least one year before a decision on listing is made by UNESCO's World Heritage Committee.

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