

For those who come after.





# NINGALOO

## AUSTRALIA'S WILD WONDER

First published 2025 by  
FREMANTLE PRESS

Fremantle Press Inc. trading as Fremantle Press  
PO Box 158, North Fremantle, Western Australia, 6159  
fremantlepress.com.au

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Illustrations in this book were created with a combination of seawaters, watercolours, pencil, pastel and digital drawing/collage.

Cover image by Cindy Lane, cindylaneart.com.au

Designed by Julie Hally, juliehally.com.au

Printed by Leo Paper Products Ltd. Guangdong, China



A catalogue record for this book is available from the National Library of Australia

ISBN 9781760995324 (hardback)



Department of  
Local Government, Sport  
and Cultural Industries



Fremantle Press is supported by the State Government through the Department of Local Government, Sport and Cultural Industries.

Fremantle Press respectfully acknowledges the Whadjuk people of the Noongar nation as the Traditional Owners and Custodians of the land where we work in Walyalup.



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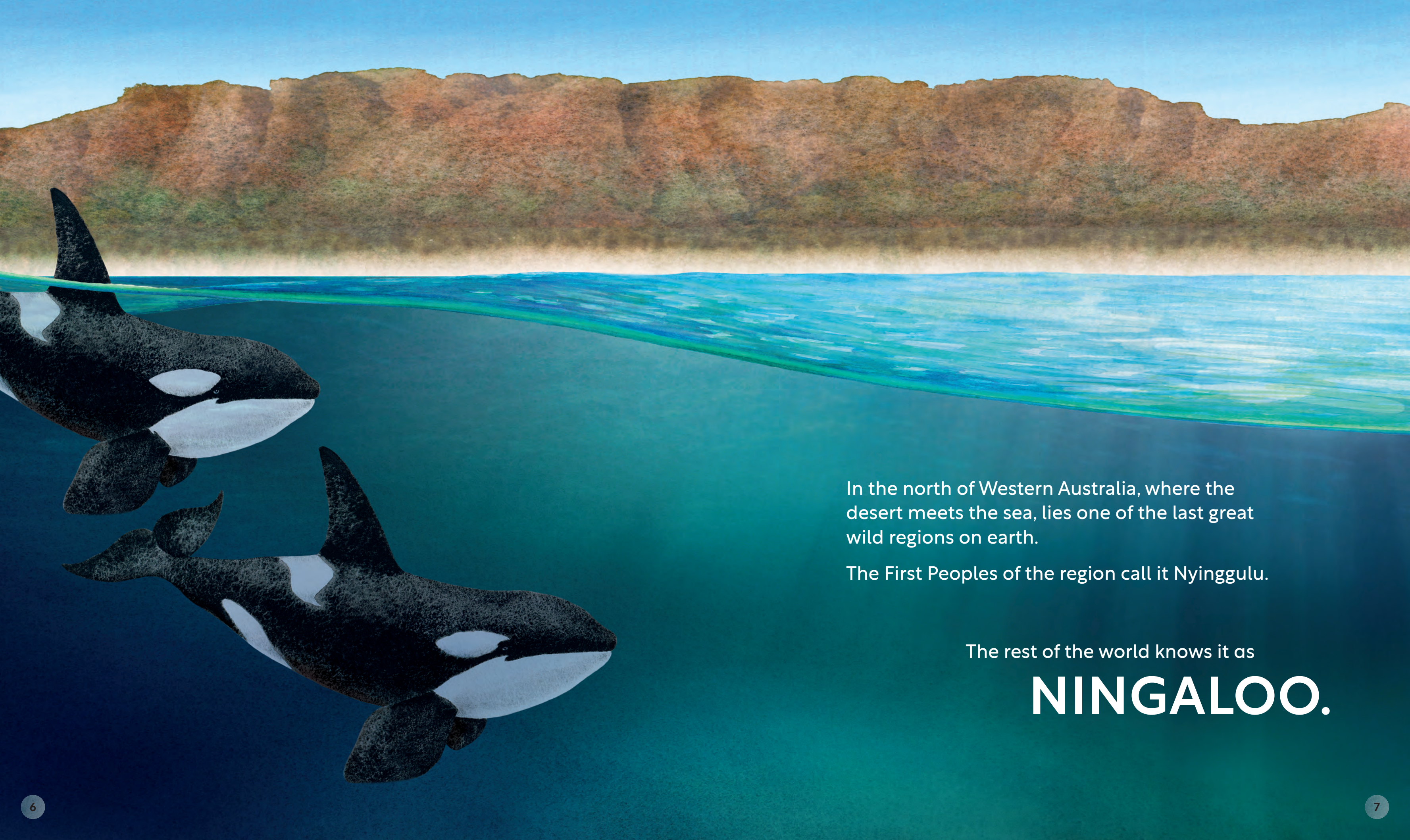




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In the north of Western Australia, where the desert meets the sea, lies one of the last great wild regions on earth.

The First Peoples of the region call it Nyinggulu.

The rest of the world knows it as

**NINGALOO.**



# NINGALOO NYINGGULU

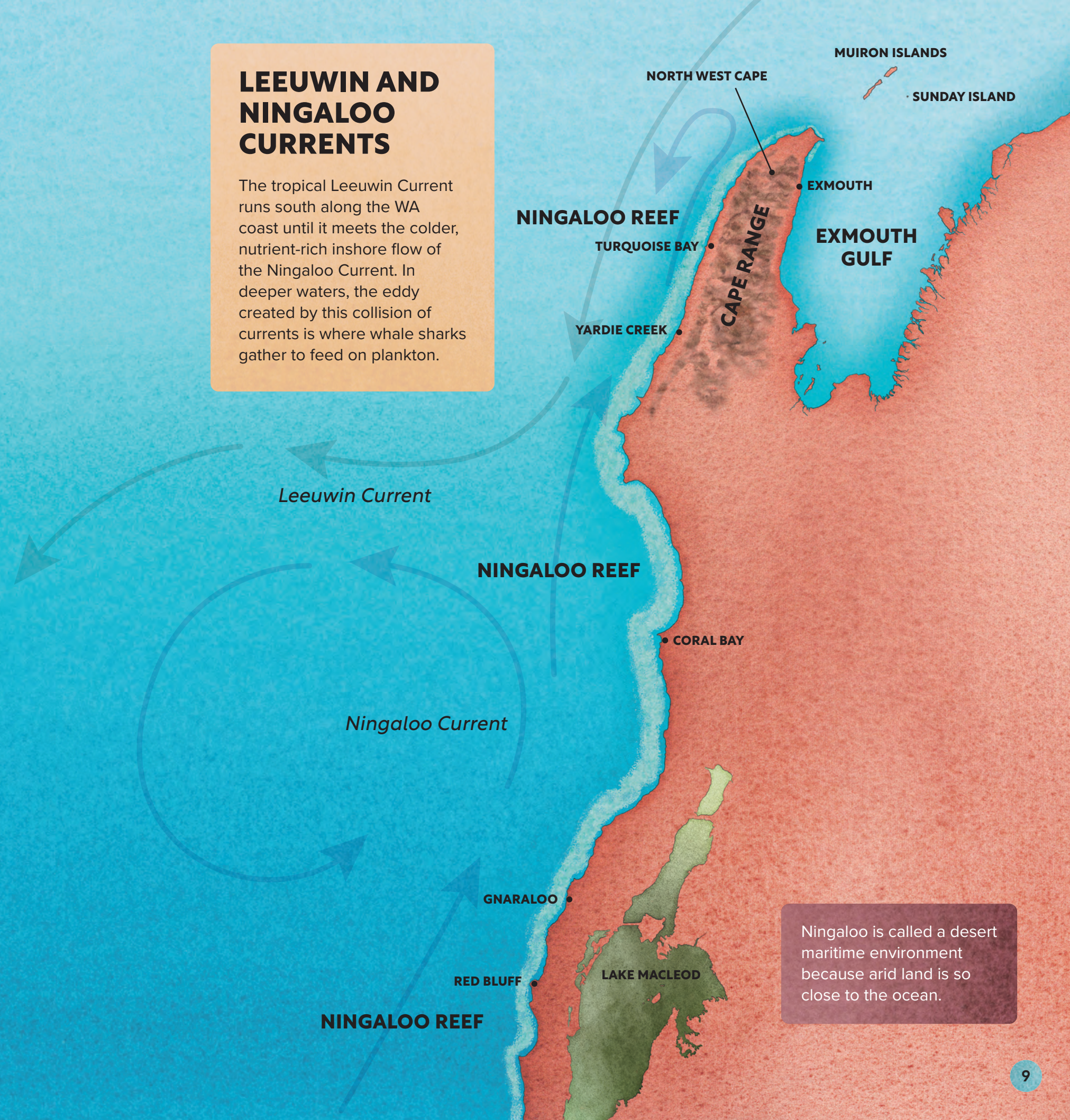
Ningaloo is made up of three interconnected ecosystems: Ningaloo Reef, the Cape Range and Exmouth Gulf. Like the three toes of an emu's foot, they support and rely on each other to maintain balance and strength for the whole environment. The region's Traditional Custodians are the Baiyungu, West Thalanji, and Yinigurtura peoples.

Ningaloo is where the hot tropical zone of northern Australia meets the milder temperate zone of the south. These different weather patterns intersect and overlap, which has helped produce the remarkable diversity of plants and animals that live here.



## LEEWIN AND NINGALOO CURRENTS

The tropical Leeuwin Current runs south along the WA coast until it meets the colder, nutrient-rich inshore flow of the Ningaloo Current. In deeper waters, the eddy created by this collision of currents is where whale sharks gather to feed on plankton.



Ningaloo is called a desert maritime environment because arid land is so close to the ocean.



# NINGALOO REEF

This is the longest fringing coral reef in the world. In many places it is so close to shore that you can swim to it from the beach. In a single day, you can see more species of megafauna here than nearly anywhere else on planet Earth.

Although it's only a fraction the size of its more famous cousin, the Great Barrier Reef, its biodiversity is astounding. It supports 300 species of coral, over 700 kinds of fish, 650 types of molluscs and 600 kinds of crustaceans. But it's best known for its large animals, like whale sharks, manta rays, turtles and humpback whales.

DEEP OCEAN

FRINGING REEF

DID YOU KNOW?

In 2011, Ningaloo Reef was added to the World Heritage List.

DID YOU KNOW?

A fringing reef grows close to the land while a barrier reef forms further offshore.

Ningaloo Reef is 260 km long, and stretches from the Muiron Islands in the north to Red Bluff in the south.



**DID YOU KNOW?**

The range was also given World Heritage listing in 2011.

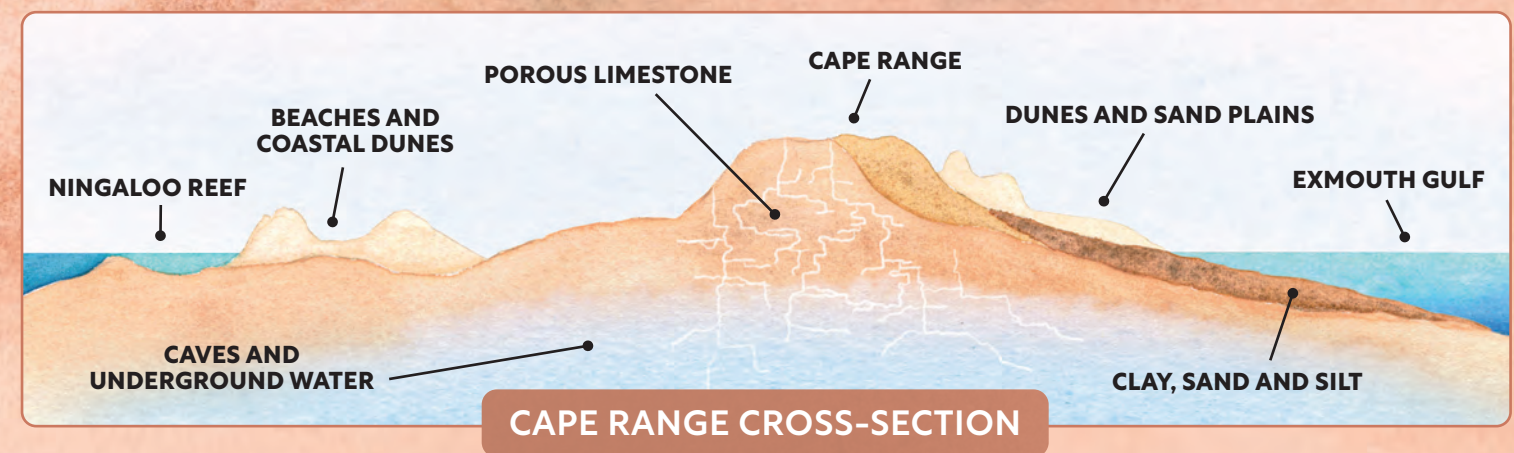
The rugged environment we see today supports 630 plant species, over 80 reptiles, 200 kinds of birds and over 40 species of mammals – some of which are only found in Ningaloo and nowhere else on the planet.

# CAPE RANGE

The steep, fractured limestone formations of the Cape Range were once seabed. Millions of years ago two continental plates collided. This created uplift, so part of the sea became land.

The most distinctive terrestrial feature of Ningaloo is the large peninsula that extends north from the vast salt ponds of Lake MacLeod and sits between the Indian Ocean and Exmouth Gulf. The Cape Range runs along the northernmost spine of the peninsula.

All of the canyons, gorges and creek beds in the area were formed by massive rain events. This landscape looks harsh and dry, but it hides a secret underground world of caves and waterways.







### DID YOU KNOW?

Although it was meant to be included in the Ningaloo World Heritage Area in 2011, the Gulf was left unprotected.

It supports nearly twice as many fish species as Ningaloo Reef, and has very high levels of abundance and biodiversity.

As well as critical seagrass and sponge communities, the Gulf has special corals called 'turbid corals' that can survive temperatures that would kill other kinds of coral.

# EXMOUTH GULF

Because it's the nursery for so many endangered and vulnerable species, like dugongs, sawfish, sea snakes and shorebirds, Exmouth Gulf is globally significant.

The Gulf is one of the world's most important refuges for humpback whales. Here they give birth, nurse their calves and rest after their arduous winter migration from Antarctica.

Exmouth Gulf is a large arid-zone estuary, one of the few that hasn't been degraded by industrial development. It is enormous and extends over 2,600 km<sup>2</sup> with vast, pristine mangrove forests and wetlands so big they're visible from space.



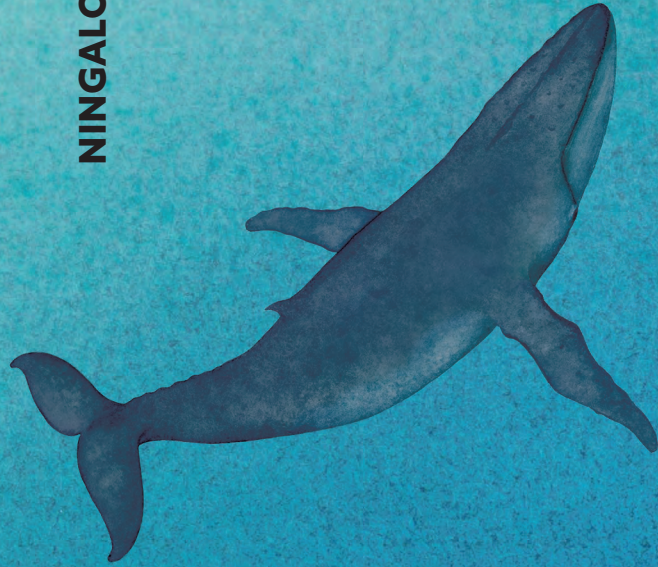
# NINGALOO COMMUNITIES

The Ningaloo coast is composed of individual and overlapping habitats or 'communities' – from easily visible marine-based homes to mysterious worlds hidden deep beneath the rocks and gorges.

NINGALOO REEF



NINGALOO REEF



CAPE RANGE



EXMOUTH GULF



MUIRON ISLANDS



LAKE MACLEOD



## COMMUNITIES KEY

### CORAL REEF

This coral reef is a fringing reef that lies close to the shore, following the coastline.

### INTERTIDAL

The intertidal area is where the sea and the land connect and overlap.

### MANGROVES

Mangrove trees are specially adapted to salt water.

### SEAGRASS

Seagrass meadows provide habitat and food sources for many marine creatures, including fish and dugongs.

### FOSSIL REEF

The Cape Range area was once an underwater coral reef.

### KARST

Over time, rainwater dissolved the limestone rocks to create deep caverns and hollows.

## DID YOU KNOW?

Lake MacLeod has the largest inland mangrove community in the world.



A coral reef looks like one big solid structure, but really it's a community made up of millions of tiny, soft animals called polyps that produce the hard surfaces we call corals.

BOTTLENOSE DOLPHIN

CORAL GROUPE

JUVENILE GOLDEN TREVALLY

POTATO ROCKCOD

WOBEGONG

As the polyps feed and grow, each creature forms a hard crust, which becomes the coral you see on the reef.

# CORAL REEF COMMUNITY

A healthy coral reef is a rich, colourful world. It provides homes, nurseries and food for many animals – from the tiniest seahorses to enormous rays and sharks.

## DID YOU KNOW?

The polyps that build the reef need clear water that's not too warm. When the water grows cloudy and the sea temperature increases (as a result of climate change), polyps starve and corals begin to bleach. If conditions don't improve, coral reefs die and many of the creatures that live there disappear.

WHITE-SPOTTED EAGLE RAY

MANTA RAY

ROUND BATFISH

CORAL TROUT

GREEN TURTLE

SQUID



Mangrove trees are called 'extremophiles' because they can survive in extreme conditions like Ningaloo's hot and salty environment.

Behind the mangroves, there are massive blue-black patches that grow like a skin over the brown mud. These are called cyanobacterial mats. They are among the oldest life forms on the planet. Like the leaves of a tree, they turn sunlight into oxygen – but only when they're wet.

Along the shoreline of the mangroves are tidal flats. These big stretches of mud are rich with crustaceans and burrowing fish. At low tide, they become a feast for sea snakes and shorebirds.

BRAHMINY KITE



SACRED KINGFISHER



MUD CRAB



FIDDLER CRAB



FAR EASTERN CURLEW



Below the waterline, the tree trunks and roots give shelter to fish, sharks, rays, crabs and prawns. Above the waterline, tree limbs and leaves provide habitats for birds.

MANGROVE SEA SNAKE



# MANGROVE COMMUNITY

## LOW TIDE

Mangroves are trees that live at the sea's edge. But the mangrove environment is about more than just trees; all around them lies a vast wetland of tidal flats.



Mangrove communities are important as 'carbon sinks'. They take carbon dioxide from the air and fix it in these muddy sediments. When wetland forests are disturbed or removed, they release carbon into the atmosphere, which contributes to global warming.

Above the mangrove canopy, bats snack on the clouds of insects that gather at dusk.

**DID YOU KNOW?**

Mangrove forests provide a buffer between the ocean and the land, protecting it from storm surges.

Thousands of rays and sharks swim up over the flats, through the mangroves, and out beyond to feed on country where, hours before, there was no water. At its highest tide, the gulf doubles in size.

# MANGROVE COMMUNITY

## HIGH TIDE

At high tide, mangrove wetlands flood with water – and with animals looking for a feed. When the tide goes out again, all the nutrients on the land flush back out to feed the gulf.

JUVENILE MANGROVE JACK

GREEN SAWFISH

SHOVELNOSE RAY