For those who come after.

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NINGALOO

AUSTRALIA'S WILD WONDER

TIM WINTON
Illustrated by CINDY LANE

FREMANTLE PRESS

CONTENTS

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.

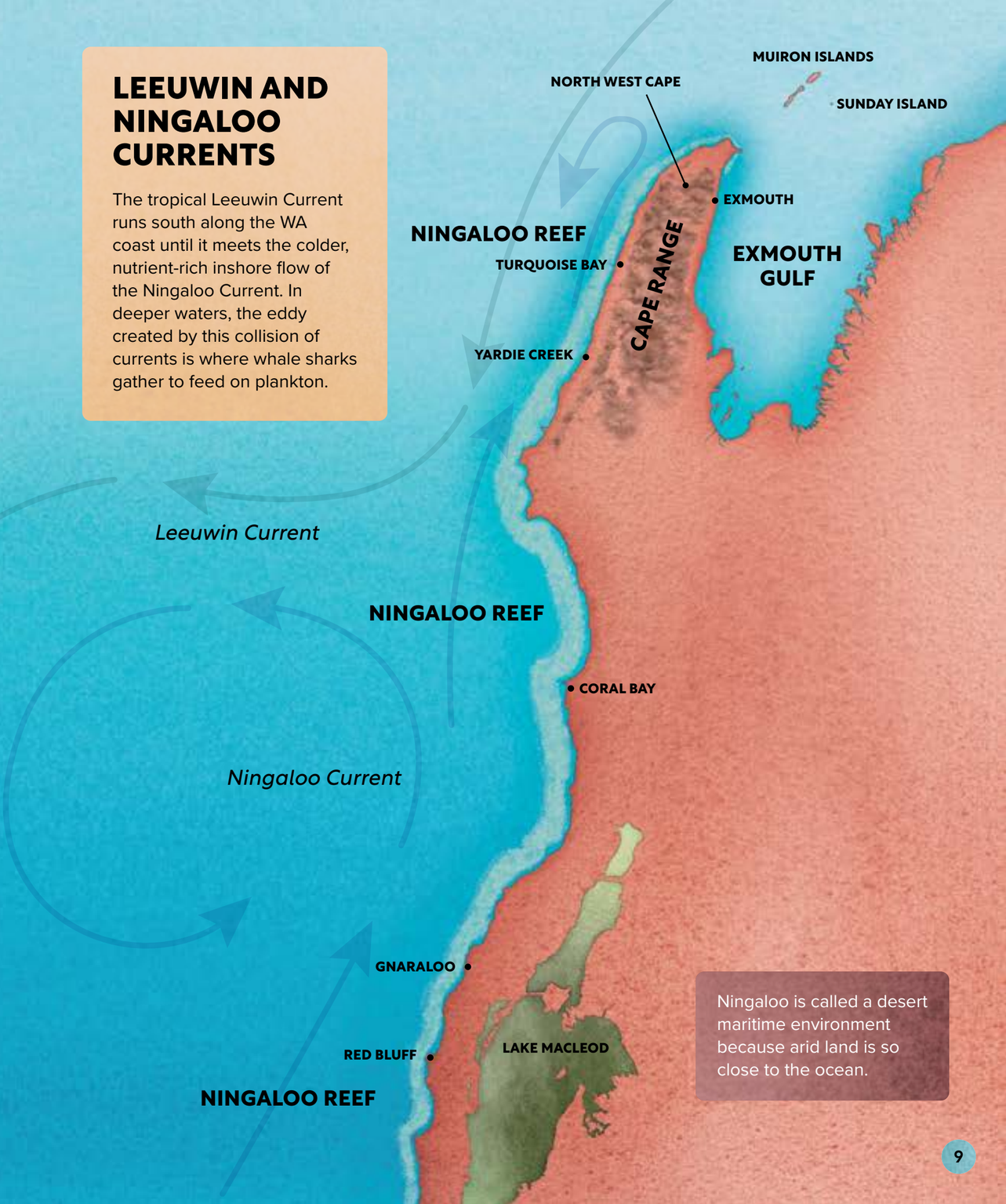
NINGALOO NYINGGULU

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.

LEEUWIN 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.

DID YOU KNOW?

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

DID YOU KNOW?

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

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.

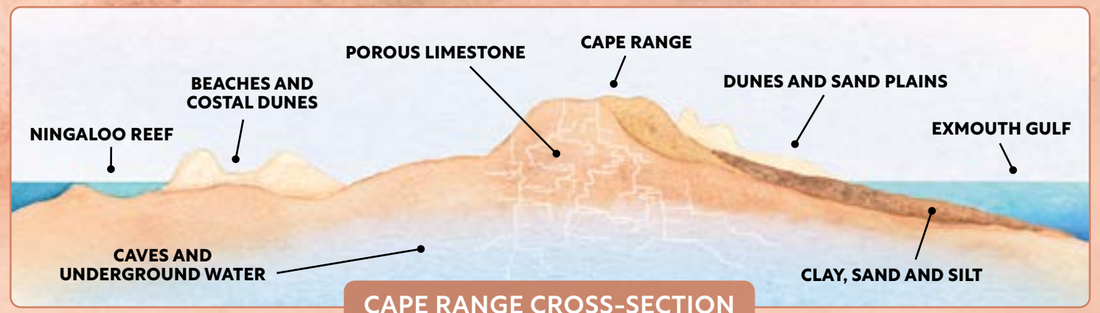
The rugged environment we see today supports 630 plant species, over 80 reptiles, 200 kinds of birds and over 40 species of mammals – some of which are only found in Ningaloo and nowhere else on the planet.

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 McLeod 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.



CAPE RANGE CROSS-SECTION

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.

EXMOUTH GULF

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

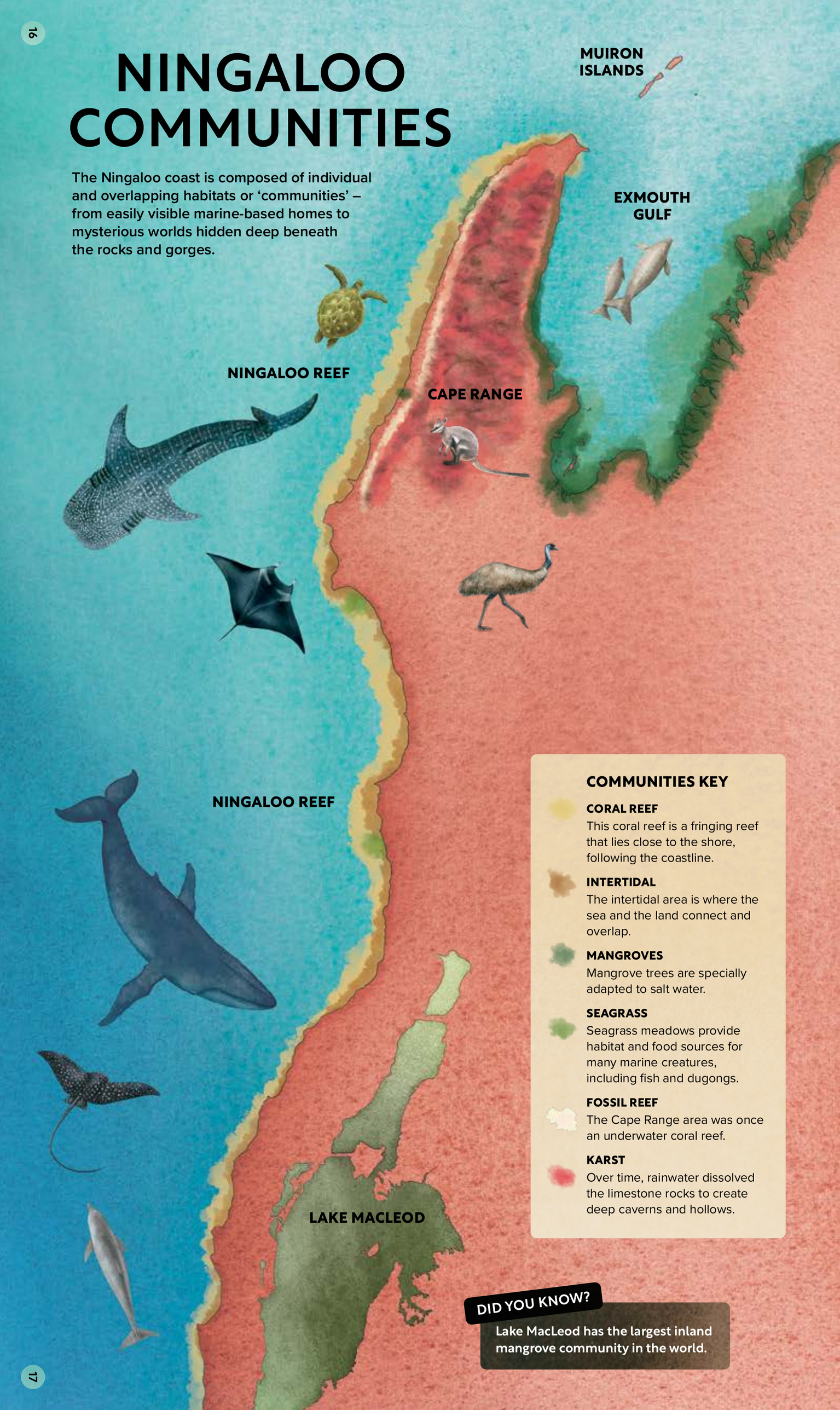
The Gulf is one of the world's most important refuges for humpback whales. Here they give birth, nurse their calves and rest after their arduous winter migration from Antarctica.

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 km² with vast, pristine mangrove forests and wetlands so big they're visible from space.

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.

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.



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.

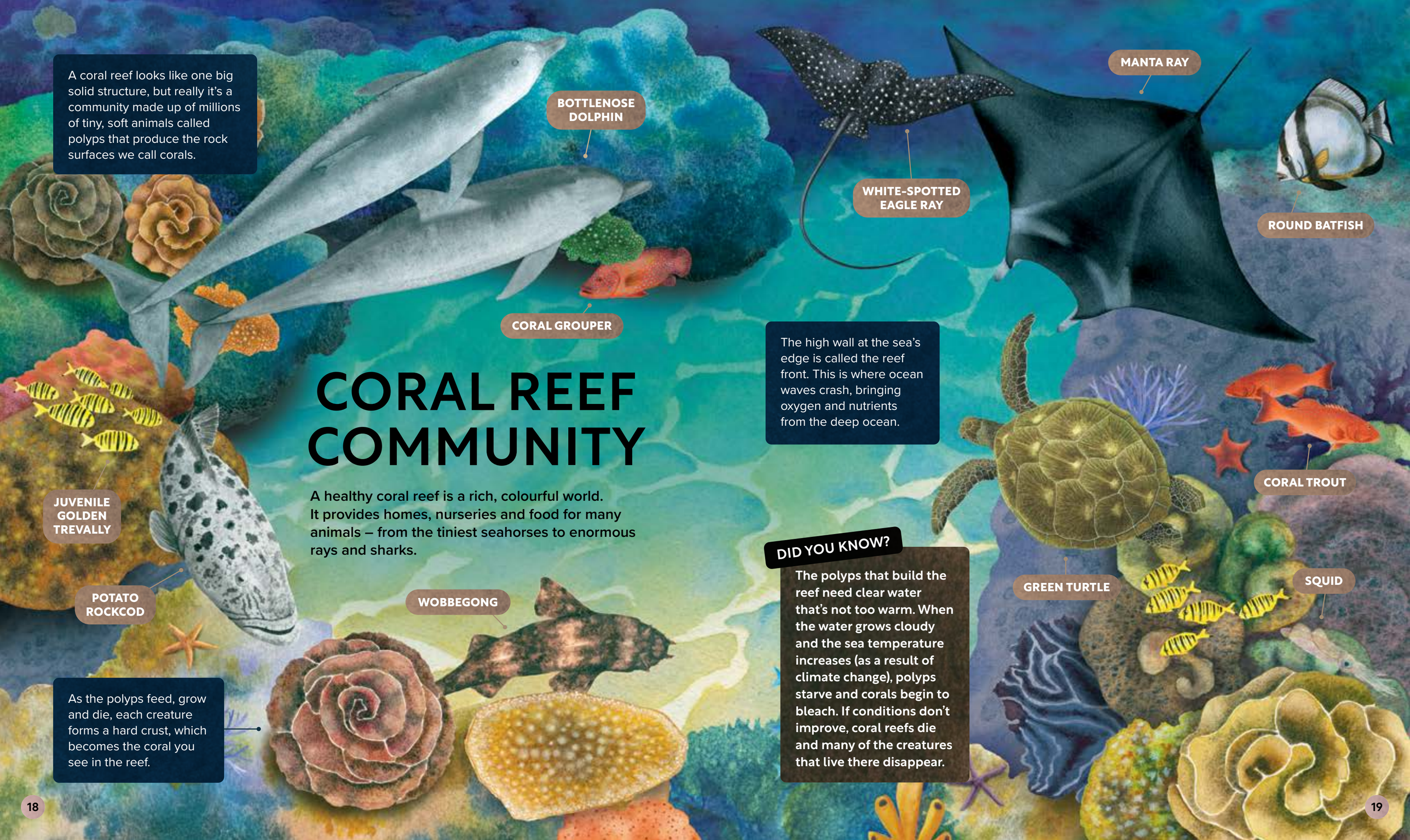
SEAGRASS
Seagrass meadows provide habitat and food sources for many marine creatures, including fish and dugongs.

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 rock surfaces we call corals.
BOTTLENOSE DOLPHIN
CORAL GROUPER
WHITE-SPOTTED EAGLE RAY
MANTA RAY
ROUND BATFISH
The high wall at the sea's edge is called the reef front. This is where ocean waves crash, bringing oxygen and nutrients from the deep ocean.
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.
JUVENILE GOLDEN TREVALLY
POTATO ROCKCOD
WOBBEGONG
GREEN TURTLE
SQUID
CORAL TROUT
As the polyps feed, grow and die, each creature forms a hard crust, which becomes the coral you see in the reef.
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.

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

BRAHMINY KITE

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.

Behind the mangroves, there are massive blue-black patches that grow like a skin over the brown mud. These are called cyanobacterial mats. These 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.

SACRED KINGFISHER

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.

FIDDLER CRAB

MUD 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

Mangroves 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 contribute 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, mangroves flood with water – and 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