

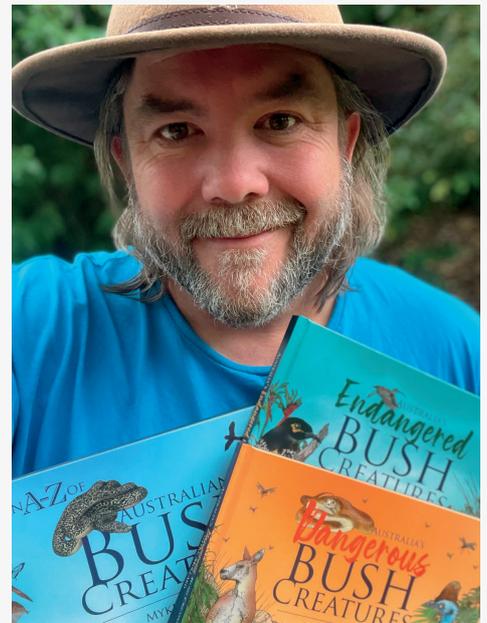
# WILDLIFE OF AUSTRALIA'S GREAT BARRIER REEF

TEACHING NOTES



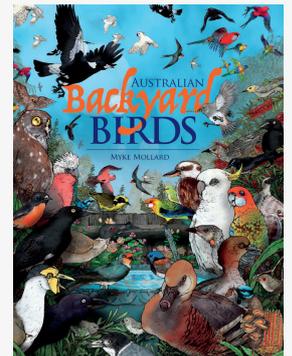
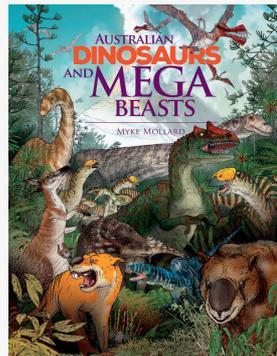
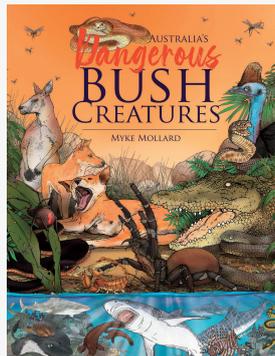
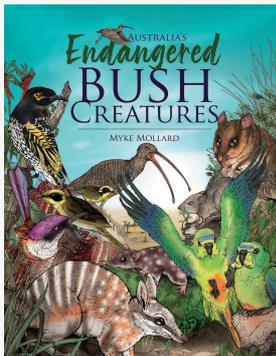
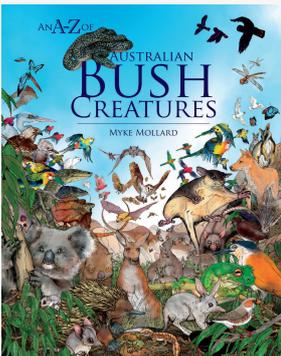
# ABOUT THE AUTHOR/ILLUSTRATOR

Myke Mollard is a children's educator, illustrator, author, and designer. He began his career in graphic design, branding management and producing commercials for TV. He later found outlets for his passion for educating kids about the world around them, both in person in classroom and online settings, and via his books which he fully writes and illustrates himself. Myke

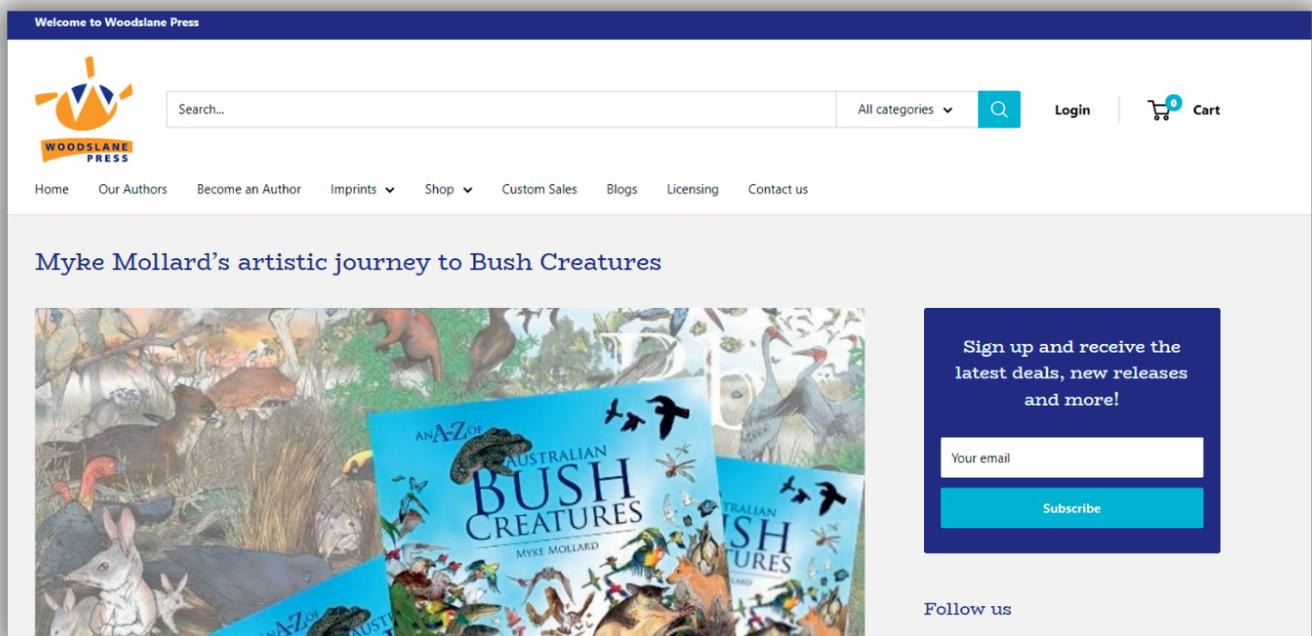


wants to inspire the next generation to make better choices and to find creative solutions to safeguard our natural environment.

Other books by Myke Mollard include A-Z of Australian Bush Creatures, Australian Endangered Bush Creatures, Australian Dangerous Bush Creatures, Australian Dinosaurs and Mega Beast, and Australian Backyard Birds.



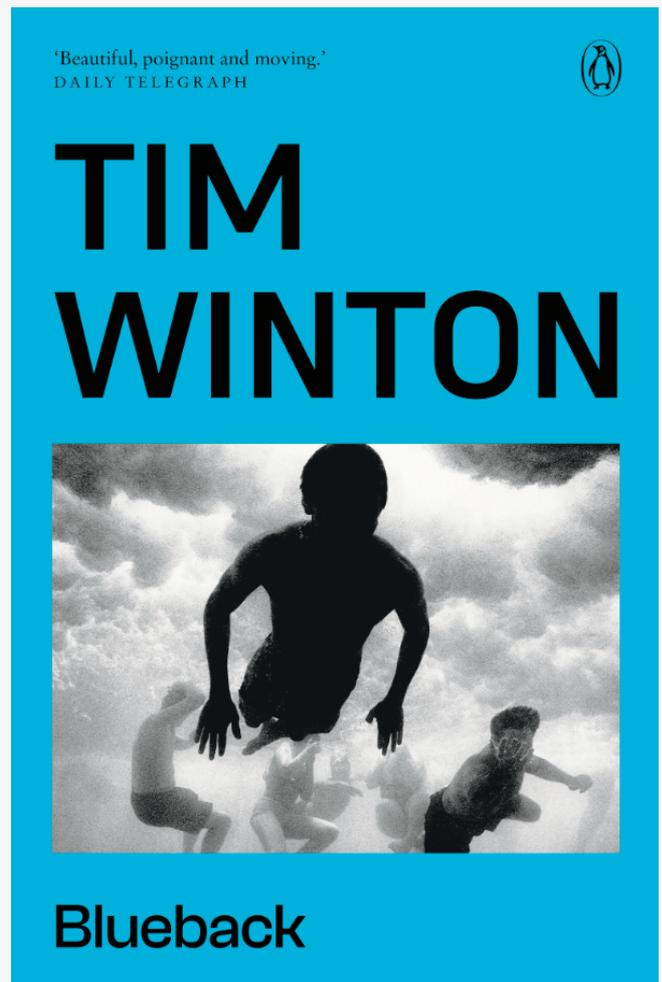
- Ask students: What can you tell about Myke Mollard from this book?
- Some students may be fascinated by the illustrations in this book. Encourage them to research how one can become a biological illustrator. See also <https://www.woodslanepress.com.au/blogs/new-titles/myke-mollard-s-artistic-journey-to-bush-creatures> where Myke recounts his own artistic journey.



# CONVENTIONS OF NONFICTION

- Ask students to list the conventions used in this book.
- Challenge them to create an index and glossary for this book.

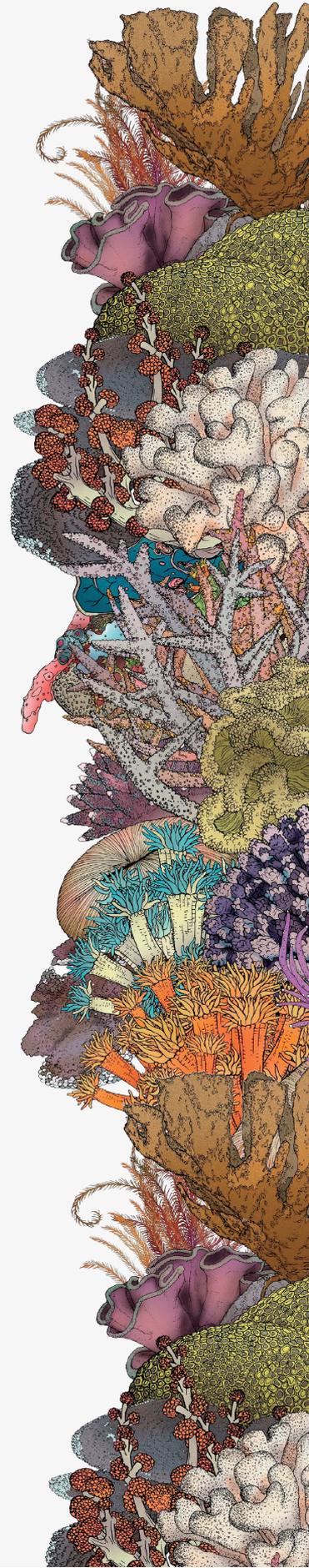
- Encourage students to read Tim Winton's contemporary fable *Blueback*. (A film adaptation is also available on Prime). Alternatively, read it aloud to them over a few days or weeks. It is suitable for good readers as young as six but will also appeal to teenagers and even adults with its positive take on how we can live in the modern world with our morality and respect for the environment intact.



- This book and Tim Winton's *Blueback* address similar subject matter in quite different ways. Encourage students to discuss how they differ (nonfiction/fiction) and how they are similar (key themes expressed include biodiversity, respect for the environment, threats to species and habitats).
- Challenge students to use Myke Mollard's incredible illustrations and Tim Winton's prose as inspiration to write descriptive narratives about EITHER how it would feel to dive in a healthy coral landscape abundant with marine life OR describing what they would see as a bird flying over The Great Barrier Reef.

# AUSTRALIA'S CORAL REEFS

- Ask:
  - What is coral?
  - How did The Great Barrier Reef come to be?
  - Why has The Great Barrier Reef been listed as a World Heritage Area?
  - Do you know another Australian coral reef that has been listed as a World Heritage Area? (A three-part series on Ningaloo Reef, written by Tim Winton, is available on ABC iview).
  - Are all coral reefs the same? Why might we find different species in different places?
  - Why is The Great Barrier Reef considered to be a living structure?
  - Of what importance is The Great Barrier Reef to Australia?
  - What types of coral are found on The Great Barrier Reef?
  - What is coral bleaching?
  - What are the biggest threats to The Great Barrier Reef? Together create a list of threats.
  - What can we do to help? Together, create a list of ways we might help.



- Create a paper mache coral reef as a class project. See <https://www.youtube.com/watch?v=AZFGfTzoqP8>
- Have students each create a story wheel to illustrate the life cycle of a coral.
- Australia's northern, western, and south-eastern coastlines are underwater playgrounds with their own unique coral-reef ecosystems waiting to be explored. Give each student a map of Australia and have them draw in The Great Barrier Reef, The Southern Great Barrier Reef, Ningaloo Reef, and Montgomery Reef.
- Encourage students to research each reef and report back to the class on whether they all face similar threats.
- Challenge students to each write a newspaper article focusing on one critical marine habitat (sea grass, sand, sargassum, mangroves), or on the importance of islands to environmental conservation.
- Urge students to consider whether it is possible to maintain the health of Australia's coral reefs while at the same time supporting tourism to the reefs. Based on their conclusions, challenge them to EITHER design a sustainable Great Barrier Reef eco resort and tourist brochure advertising its virtues OR to give a persuasive speech to the class as to why tourism and The Great Barrier Reef cannot co-exist and to design a poster based on their speech.
- Inspire students to find out what a coral reef ecologist does and what other scientists work on coral reefs, eg marine biologists and climate scientists.

# INDIGENOUS SIGNIFICANCE

Prior to sea-level rise and The Reef forming over 7000 years ago, Aboriginal and Torres Strait Islander peoples lived on what is now the seafloor, and cultural knowledge of this time's practices and sites still remains.

Support students to find answers to the following questions:

- Who are the traditional owners of The Reef?
- How can Indigenous knowledge help protect The Reef?
- Was Captain Cook the first person to discover The Reef when his ship Endeavour ran into it on 11th June 1770 and nearly sank?



# WHAT IS BIODIVERSITY AND WHY IS IT IMPORTANT?

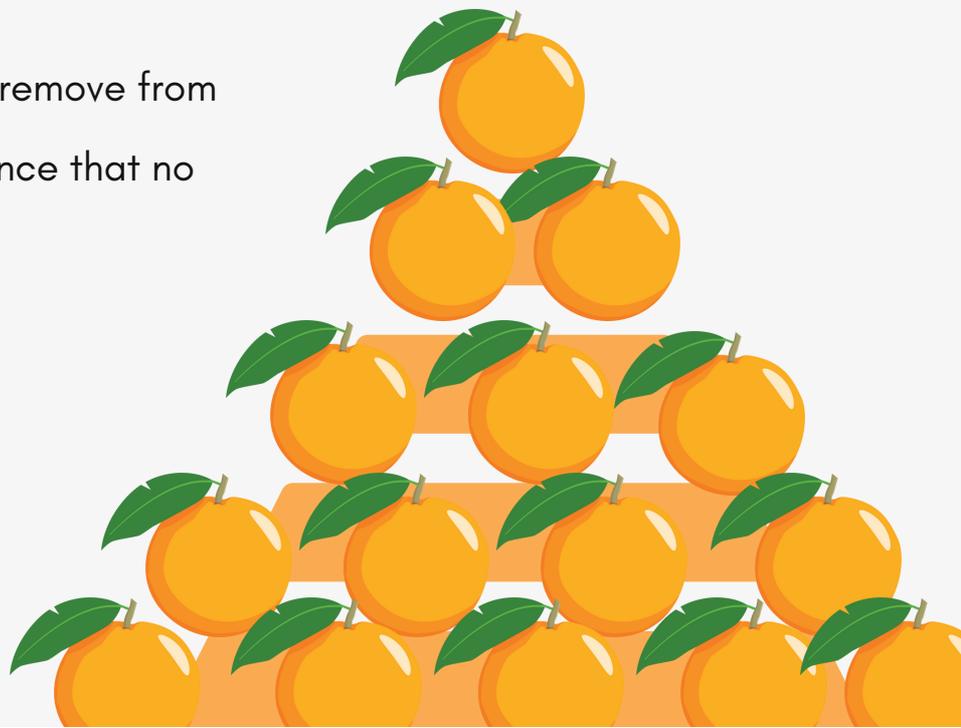
Biodiversity is the variety of all living things - plants, animals, and microorganisms - and the different genetic information they contain, and the varied ecosystems they form.

All species, including humans, rely on other species to live and we need a variety of healthy ecosystems to support the life of all species.

As we know so little about the interconnectedness and relationships between different systems, it is impossible to be sure if we can afford to lose a species without any adverse impact on its ecosystem.

It may help to have students think of this like a pyramid of oranges, all balancing on each other.

Could they pick one orange to remove from the pile and know with confidence that no other oranges would fall?



Biodiversity is important for the survival of humanity. The CSIRO describes five core values that humans place on biodiversity:

**Economic**—biodiversity provides humans with raw materials for consumption and production. Many livelihoods, such as those of farmers, fishers, and timber workers, are dependent on biodiversity.

**Ecological life support**—biodiversity provides functioning ecosystems that supply oxygen, clean air and water, pollination of plants, pest control, wastewater treatment and many ecosystem services.

**Recreational**—many recreational pursuits rely on our unique biodiversity, such as birdwatching, hiking, camping, and fishing. Our tourism industry also depends on biodiversity.

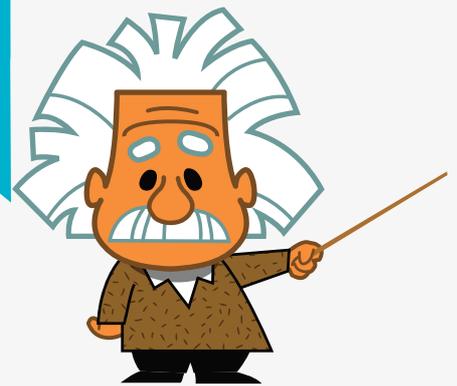
**Cultural**—Australian culture is closely connected to biodiversity through the expression of identity, spirituality, and aesthetic appreciation. Indigenous Australians have strong connections and obligations to biodiversity arising from spiritual beliefs about animals and plants.

**Scientific**—biodiversity represents a wealth of systematic ecological data that help us to understand the natural world and its origins.

Any loss or deterioration in the condition of biodiversity can compromise human wellbeing. For example, many species and different microbes have provided astounding advances in medical research. The zebrafish, for example, has an incredible ability to recover fully from a severed spinal cord. Research so far has shown this ability may be present in human genes but is currently inhibited. Who knows what species might provide valuable knowledge in the future?

- Debate and discuss:
  - Albert Einstein said:

*"Our task must be to free ourselves by widening our circle of compassion to embrace all living creatures and the whole of nature in its beauty."*



- The Great Barrier Reef offers us lessons for the present and choices for the future.
- Colonisation was a tsunami of destruction that decimated animals, habitats, and language in Australia.
- The world's most precious commodity is wild nature. Every turtle saved makes a difference.

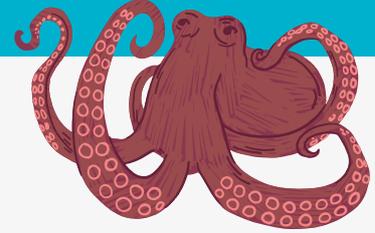


# FACT FILES

Have students work in groups to use information from the book to create illustrated files of incredible facts about any of the following species found in or around The Reef:

Clown Fish	Dolphinfish	Whip Ray	Humpback Whale
Damsel Fish	Ocean Sunfish	Moray Eel	Dwarf Minke Whale
Coral Trout	Sawfish	Nudibranchs	Bottlenose Dolphin
Chinaman Fish	Potato Cod	Sea Cucumber	Dugong
Red Emperor	Guitarfish	Molluscs	Sea Lion
Kingfish	Brown Noddies	Cone Shell	Osprey
Grouper	Bull Shark	Green Mud Crab	Goanna
Parrot Fish	Whale Shark	Saltwater Crocodile	Sea snakes
Leatherjacket	Hammerhead Shark	Water Dragon	Sea Krait
Triggerfish	Lemon Sharks	Blue-throated Skink	Jellyfish
Sturgeon	Carpet Sharks	Wood Gecko	Pilot Fish
Maori Wrasse	Banjo Shark	Green Sea Turtle	Trevally
Marlin	Spotted Wobbegong	Bramble Cay Melomys	Tuna
Sail fish	Manta Ray	Olive-backed Sunbird	Stingrays
Barracuda	Shovel-nose Ray	Blue-faced Honeyeater	Octopus
Snapper	Devil Ray	White-bellied Sea Eagle	Clams

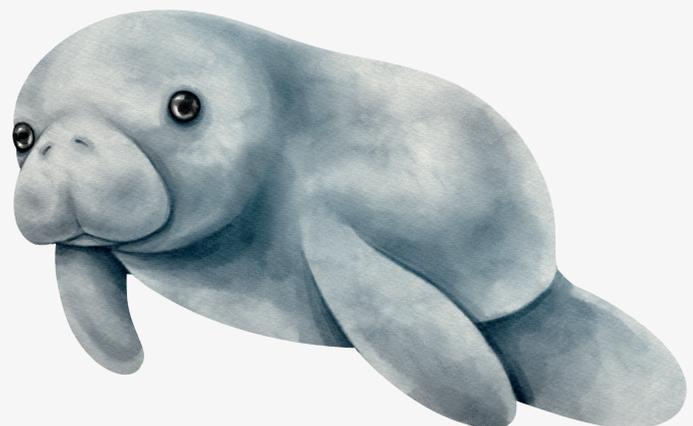




# RESOURCES

- As a class, watch *David Attenborough's Great Barrier Reef: An Interactive Journey*. This interactive virtual tour of The Great Barrier Reef provides activities for all ages, maps, videos, photos, and audio covering the reef's wildlife, threats, and research. See [https://attenboroughsreef.com/experience\\_intro.php](https://attenboroughsreef.com/experience_intro.php)
- The official site of the Australian government's Great Barrier Reef Marine Park offers a variety of resources providing reef facts, health updates, animals, threats, and more. See <https://www.dcceew.gov.au/parks-heritage/great-barrier-reef>
- The Great Barrier Reef Foundation provides an interactive map of the different reefs that make up The Great Barrier Reef. The site also includes many detailed articles and videos on the creatures that inhabit the reef, threats to its existence, and general facts. See <https://www.barrierreef.org/>
- The National Oceanic and Atmospheric Administration's Coral Reef Watch provides satellite monitoring of the world's oceans and coral reefs. On the site, you can find real-time and historical data, informational maps, and information on the NOAA's coral reef research. See <https://coralreefwatch.noaa.gov/>
- The Great Barrier Reef Marine Park Coral Bleaching Interactive Map - this interactive map uses data from The Great Barrier Reef Marine Park to track coral bleaching. Click on areas of the map to learn about the severity of coral bleaching in that area. See <https://mangomap.com/environment/maps/54471/great-barrier-reef-marine-park-coral-bleaching#>
- Allen Coral Atlas Great Barrier Reef Interactive Map - this interactive map provides comprehensive data from various institutions on the world's coral reefs. You can use the map to view coral bleaching events, sea temperatures, temperature trends, ocean water turbidity, historical satellite imagery, and more. See <https://allencoralatlas.org/>

- The UNESCO World Heritage site provides a wealth of resources for students, including an extensive gallery of images, description and importance of the reef, an educational video gallery, maps, and more. See <https://whc.unesco.org/en/list/154/>
- Take a virtual tour of the Great Barrier Reef using one of the Google Arts & Culture digital exhibitions that include photo galleries and 360° photos. See <https://artsandculture.google.com/story/a-journey-along-the-great-barrier-reef-underwater-earth/>
- Reef Beat is a curriculum-based education program for students developed by The Great Barrier Reef Marine Park Authority. See <https://www2.gbrmpa.gov.au/learn/reef-beat-series>
- The Great Barrier Reef and its Coastal Zones - this teaching unit, from Angela Coliver of The Great Barrier Reef Marine Park Authority, provides key understanding, ideas, terminology, focus questions, and more. See <http://www.mesa.edu.au/resources/tu01.asp>
- The National Oceanic and Atmospheric Administration's Office of National Marine Sanctuaries has a large collection of coral reef teacher resources, including curriculum, lesson plans, study units, handouts, and more. See <https://sanctuaries.noaa.gov/education/>



# **The Wildlife of the Great Barrier Reef**

by Myke Mollard

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