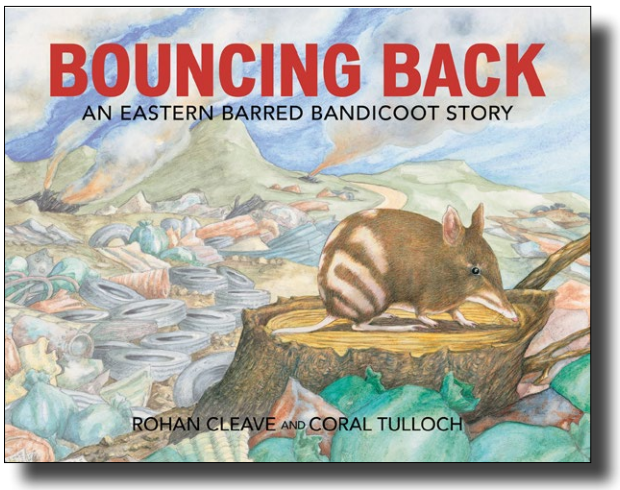
TEACHER NOTES



BOUNCING BACK

AN EASTERN BARRED BANDICOOT STORY

Rohan Cleave (Author) and Coral Tulloch (Illustrator)

About the book

A beautifully illustrated story of this marsupial's plight and how it was saved from extinction.

The Eastern Barred Bandicoot is one of Australia's most threatened species. When their existence came under extreme threat from habitat loss, predators and human development, Eastern Barred Bandicoots found refuge in the most unlikely of places – a rubbish tip. This captivating true story details the plight these small, nocturnal marsupials faced, and the outstanding efforts that ensured their protection. Written by Rohan Cleave and illustrated by Coral Tulloch, *Bouncing Back* shows that even on the brink of extinction, there is hope for the survival of our most vulnerable species.

Rohan Cleave and Coral Tulloch's first book, *Phasmid: Saving the Lord Howe Island Stick Insect,* won a Whitley Award for Children's Natural History Book and was an Honour Book in the Children's Book Council of Australia Book Awards (Eve Pownall Information Book category).

Bouncing Back is perfect for primary aged readers.

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TEACHER NOTES

Written by Dianne Gordon

The grasses shiver and part as a twitching black nose sniffs the night air. A pair of bright, beady eyes blink in the darkness, checking that all is safe before darting from her nest, ready to snuffle through the undergrowth for juicy grubs and crunchy beetles. Perhaps this night will provide rich pickings for the young Eastern Barred Bandicoot….

No longer are these animals widespread throughout our Victorian grassy woodlands.

Through unsustainable environmental practices, humans drove these Eastern Barred Bandicoots to seek shelter in an old tip, we and even pushed them into extinction in the wild.

Bouncing Back is a story of incredible struggle and effort: both on the part of the Eastern Barred Bandicoot to survive and also on the part of all the dedicated conservationists who have contributed their research, knowledge and practical assistance over the course of nearly 50 years.

These notes offer suggested questions as a springboard for inquiry based learning. They can be used to prompt further inquiry in discussions and, in conjunction with student questions, to frame research and contribute to positive action.

The Australian Curriculum links conclude the notes.

Adaptations for Survival:

An adult Eastern Barred Bandicoot will fit into your cupped hands. Their fur is very soft but they have extremely sharp teeth for crunching up their food (or your fingers if you're not careful!).

- The 'bars' across the rump are distinctive. How would they help the Eastern Barred Bandicoot to survive in its habitat?
- What could happen if the Eastern Barred Bandicoot was free range, but not in its habitat?

The backward-facing pouch is not unusual – there are several other Australian marsupials who possess one.

- Find out some other animals who have a backward-facing pouch.
- What is the advantage of having a backward-facing pouch?
- Why would some marsupials (like a possum) have a forward-facing pouch and others have the backward facing pouch?

As the Eastern Barred Bandicoot needs to dig up much of its food,

- which features of its body help it to locate and then find its food?

Eastern Barred Bandicoots do not give birth to as many young when the weather is hot and dry. Scientists wonder if this could be due to the bandicoots' favourite invertebrate foods being less available in hot conditions.

- What might happen to the Eastern Barred Bandicoot if climate change continues to warm our planet?

The Struggle to Survive:

The Eastern Barred Bandicoots' favourite grassy woodland ecosystems are shrinking due to building and development.

- Look at the illustrations inside the front cover and compare them to those inside the back cover.
- What differences can you see?
- How have those differences affected the Eastern Barred Bandicoot?

Compare the former distribution of the Eastern Barred Bandicoot in Victoria with the current, protected release sites on the map below.

Before white people came to Australia, Eastern Barred Bandicoots lived happily in the green shaded area on the map. Their native Australian predators were owls and snakes.

- Which animals did Europeans bring with them to Australia that have attacked and eaten so
- many of our Eastern Barred Bandicoots? (Hint: see how many of these animals you can find on pages 15 and 16).
- What features of a rubbish tip kept the Eastern Barred Bandicoots safe for a while?

There are still Eastern Barred Bandicoot cousins living in Tasmania. They are a little different, genetically, to those in Victoria.

- What features of Tasmania do you think might protect the Eastern Barred Bandicoot from extinction?

Hard work and creative thinking:

It became apparent that the numbers of wild Eastern Barred Bandicoots were so low that, without intervention, they would most probably become extinct within a short space of time. The Recovery team had to think of the most achievable options: captive breeding and protected free range habitats.

The free range habitats are surrounded by tall, wire fences.

- What sort of work needs to be done to maintain this protection? Read about how you can help: http://conservationvolunteers.com.au/what-we-do/threatened-species/eastern-barred-bandicoot/

More recently, small numbers of Eastern Barred Bandicoots have also been released onto fox-free islands in Port Phillip Bay.

For additional protection, here is another creative idea: watch this!

- https://www.youtube.com/watch?v=QjKDsgusbS4

Maremma dogs have a long history of being able to be trained as guardian dogs, protecting chickens and even Little Penguins.

- How long would it take to train a Maremma to protect Eastern Barred Bandicoots?

None of these actions can be effective without teamwork, scientific research, land management and funding.

- How many organisations are working together to help save this animal?

To empower students to take positive action to help the Eastern Barred Bandicoot, several conservation organisations suggest hands-on activities for students. Here are a few:

- https://www.zoo.org.au/werribee/animals/eastern-barred-bandicoot
- https://www.zoo.org.au/loveyourlocals/common-cents-challenge
- http://conservationvolunteers.com.au/what-we-do/threatened-species/eastern-barred-bandicoot/
- http://www.swifft.net.au/cb_pages/eastern_barred_bandicoot.php

Notes on the endpapers from Coral Tulloch, Illustrator

When I first read Rohan's manuscript regarding the plight of the Eastern Barred Bandicoot, it reminded me of all the species we have lost, all the habitat and diversity, and our human impact on the environment. It was a story about the bandicoot, but its overarching message was one of conservation.

I believed if I could use the endpapers to confirm Rohan's message, it would also become an element of the story itself, showing the landscape in the past (with the bandicoots surviving), then jumping from the front endpapers through the book to the back endpaper, which shows the degraded environment of the present, where there is no habitat left for the bandicoots.

I decided to create a fictionalised landscape as a map, basing it on elements of rural environments found, or that would have been common in a Victorian countryside. I didn't make it an idealised natural habitat, but one that was more honest in description of what we have done to so much of our countryside, and had more relevance to the story.

I hope both teachers and students will take time to look at the endpapers and to discuss the features and messages within them. Some suggestions for discussion topics are below.

1. If you look closely there are many tiny drawings that make up each image.

- Ask students to pick out the smaller details, such as bandicoots, kangaroos, hills hoists, skaters, cars, rubbish, shopping trolleys, farm animals, fishermen, footballers, boats and fences – to name a few.
- Ask students to identify and discuss the larger elements, such as roads, houses, shops and schools, farms and land usage (including forestry and some reserves), a prison farm, shopping centres, communication, transportation, industry, rivers and dams.

2. The differences between the two maps are fairly obvious, but provoke thought and discussion on not just what changes have occurred, but why they may have happened and what the future could hold, both positive and negative.

- In small groups, ask students to identify changes to land usage, rivers and the built environment. Ask them to discuss what may have caused the changes and whether the changes are for the better or worse. Could they be potentially damaging for the surrounding environment, or cause problems in the future?
- Discuss what impacts changes such as soil erosion, habitat loss, poor land and animal management, deforestation, waste, water usage and changes to the weather would have on the bio-region.

3. In particular, there are significant differences in land clearing and tree coverage between the front and back maps.

- Ask students to compare the two maps, and discuss what problems could arise from land clearing and tree coverage.
- Ask students to imagine a landscape without trees. What would be the effect of this on temperatures for urban areas – would houses need more air conditioning? How would this affect shelter for animals or crops?
- Discuss the impacts of land clearing and the loss of plants and roots systems. Would land clearing affect the water table or salination? What effect would this have on the soil?
- Discuss the links between land clearing, habitat and the threats to species. How many species of plants and animals would be impacted by the land clearing shown in the maps?

4. Start with the landscape of the past, from the left of the map through and compare this to the landscape of the present. The first map shows the start of some intensive land management, but the river still flows freely and there is still natural habitat and tree coverage. The end map shows the damming of the river, the expansion of the urban area and intensive farming and industry.

- What ideas do students have for what we could do to protect the environment? For example, discuss land protection measures, replanting and protection habitat for native species.
- Discuss the balance between protecting the environment and the demands for urban growth, transportation and infrastructure. What will our future hold?

Australian Curriculum

The Australian Curriculum emphasises Sustainability as a cross-curriculum priority. (https://australiancurriculum.edu.au/f-10-curriculum/cross-curriculum-priorities/sustainability/).

The content in Bouncing Back supports the three Key Concepts of Systems, World Views and Futures. As the damage to the Eastern Barred Bandicoots' habitat in the wild and the introduction of exotic predators have tipped the scales against the bandicoots' survival, their future relies on the improvement of sustainable environmental practices. Students will be empowered to contribute to these in a positive way and teachers will find that their students' understanding and action particularly fulfils the Organising Ideas within the Concept of Futures.

Content Descriptions for Science:

Year 2	Year 3	Year 4	Year 5	Year 6
Living things grow, change and have offspring similar to themselves (ACSSU030 – Scootle) Science involves observing, asking questions about, and describing changes in, objects and events (ACSHE034 – Scootle) People use science in their daily lives, including when caring for their environment and living things (ACSHE035 – Scootle)	People use science in their daily lives, including when caring for their environment and living things (ACSHE022 – Scootle) Science knowledge helps people to understand the effect of their actions (ACSHE051 – Scootle)	Living things have life cycles (ACSSU072 – Scootle) Living things depend on each other and the environment to survive (ACSSU073 – Scootle) Science knowledge helps people to understand the effect of their actions (ACSHE062 – Scootle)	Living things have structural features and adaptations that help them to survive in their environment (ACSSU043 – Scootle) Scientific knowledge is used to solve problems and inform personal and community decisions (ACSHE083 – Scootle)	Scientific knowledge is used to solve problems and inform personal and community decisions (ACSHE100 – Scootle)