



# BIOTA

## CURRICULUM LINKS:

- BIII-3 – analyses the relationships between organisms and their environment using the theory of evolution by natural selection.
- BIII-4 – explains the effects of genetic diversity and biodiversity on the survival of species and ecosystems.
- BIII-5 – examines biological processes and adaptations that increase an organism's chances of survival and reproductive success.
- BIOIWS-03 – conducts scientific investigations to collect data and information.
- BIOIWS-04 – selects and processes qualitative and quantitative data and information from scientific investigations.
- BIOIWS-05 – analyses and evaluates primary and secondary data and information to identify patterns, trends and relationships in scientific investigations.
- BIOIWS-07 – communicates scientific understanding using evidence, scientific language and terminology.



**STAGE 6  
WORKSHEET**

# WILD DISCOVERY

## SECTION 1

### Tricky Tongues & Treetops



1. Within Tricky Tongues and Treetops, find an animal that gives birth to live young. Identify the species:  
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2. Within Tricky Tongues and Treetops, find an animal that lays eggs. Identify the species:  
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3. Complete the table to compare the costs and benefits of these two reproductive strategies.

| Animal | Type of fertilisation | Number of offspring | Mode: Sexual / Asexual | Egg-laying / Live young |
|--------|-----------------------|---------------------|------------------------|-------------------------|
|        |                       |                     |                        |                         |
|        |                       |                     |                        |                         |
|        |                       |                     |                        |                         |



## SECTION 2

### Devil's Den

1. Have Tasmanian devils always been isolated in Tasmania? ☐ YES ☐ NO
2. The Tasmanian devil is thought to be the closest living relative to which extinct species?  
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# WILD DISCOVERY

## SECTION 3

### Wallaby Cliffs

1. Wallaby Cliffs is home to yellow-footed rock wallabies. What family do these organisms belong to?

2. Compare the morphological features of a yellow-footed rock-wallaby to those of an Eastern Grey Kangaroo.

| Adaptation | Description of its use |
|------------|------------------------|
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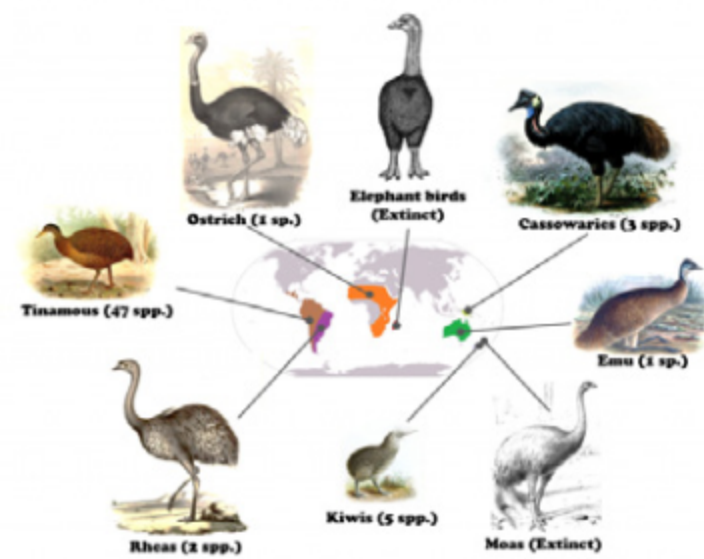


# WILD DISCOVERY

## SECTION 4

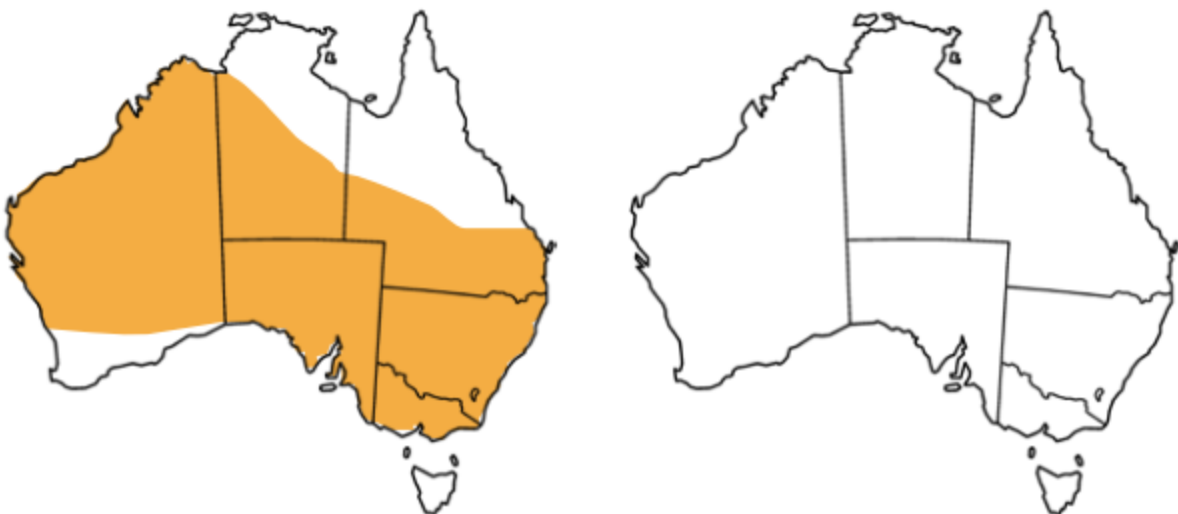
### Daintree Rainforest

Have a look at the pattern of distribution of ratites (flightless birds) in the image below. The emu and the southern cassowary are native to Australia. If you were to go to Africa, you would find the ostrich; to South America, the rhea; in New Zealand, the Kiwi; and in Papua New Guinea, the northern cassowary.



Extant ratites of the world (plus the extinct moas and elephant birds) are assigned to their geographic regions, all of them part of the supercontinent Gondwana. Sizes not to scale.

Shade in the distribution of the cassowary, a rainforest ratite whose ancestors can be traced back to 30 million years ago, when the Gondwanan rainforest covered most of the Australian continent



Describe the change in the distribution of rainforest habitats in Australia over the last few million years. Suggest the effects this may have had on the distribution of rainforest species in Australia.

# WILD DISCOVERY

## SECTION 5

### Kangaroo Walkabout

Can you outline the common features and adaptations of these modern Australian animals?

#### Kangaroo Island Kangaroo



Photo: JRTeams.com

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#### Eastern Grey Kangaroo



Photo: Iling

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The largest of the leaf-eating kangaroos (200kg) could stand on tiptoe (2-3m), prop on its tail and reach leaves up to three metres from the ground. The skull is short and deep, an indication it had enough power in its jaws to grind up very tough leaves.

#### Procoptodon Goliath



i) Explain the process of Kangaroo reproduction including specialised adaptations to the Australian environment

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ii) How do these adaptations ensure reproductive success?

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iii) Compare and contrast the difference in breeding seasons of both species displayed in this exhibit.

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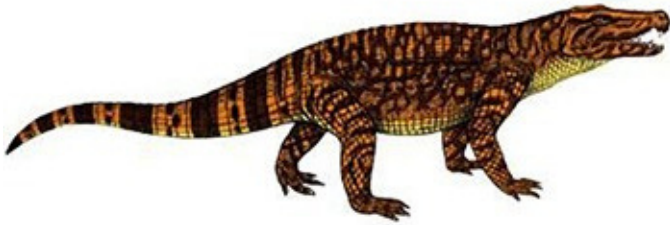
# WILD DISCOVERY

## SECTION 6

### Kakadu Gorge - The living fossil

A living fossil (or relict species) is an organism that closely resembles ancestral forms known from the fossil record.

#### Quinkana



Quinkana is an extinct genus of mekosuchine crocodilians that lived in Australia from about 24 million to 40,000 years ago. By the Pleistocene, Quinkana was the top predator of Australia, possessing long legs and ziphodont teeth.

#### Crocodile



What features or behaviours do crocodiles have that help to ensure fertilisation of their eggs?

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What features or behaviours do crocodiles have that help their young survive?

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# WILD DISCOVERY

## Platypus



© Anne Musser

## Steropodon

The ancestor: Steropodon – A monotreme similar to the platypus and echidna. Lived 100 million years ago, found in Lightning Ridge, Australia. Fossil discoveries of platypus-like animals show that they are ancient but highly adapted to the unpredictable Australian environment.

Describe some unique features of the platypus?

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What sets the platypus apart from other placental or marsupial mammals?

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How did our knowledge and classification of the platypus change over time?

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## SECTION 7

### More examples of megafauna for your own interest!

- Palorchestes azael
- Megalibgwilia ramsayi
- Simosthenurus occidentalis
- Wonambi naracoortensis
- Progura naracoortensis
- Zygomaturus trilobus
- Phascolarctos stirtoni
- Sarcophilus laniarius
- Sthenurus andersoni – Browsing kangaroo
- Simosthenurus baileyi – Powerful, thickset browsing kangaroo
- Simosthenurus gilli – Browsing kangaroo
- Simosthenurus brownei – Browsing kangaroo, ranging in size from quite small (20 kg) to almost as large as Procoptodon
- Simosthenurus maddockei – Browsing kangaroo
- Simosthenurus newtonae – Browsing kangaroo
- Simosthenurus pales – Browsing kangaroo
- Protemnodon anak – Giant wallaby
- Protemnodon brehus – Giant wallaby
- Genyornis newtoni
- Propleopus oscillans
- Sthenurus tindalei