

The Unique Australian Wildlife

The notes to the geological history of the
continent

By Maria Skochilova

School 7

Nizhny Tagil



Many countries have their own
unique fauna.

But Australia is mostly unusual
in that

320-270 million years ago

Permo-Carboniferous Age



If we had observed
the Earth surface
from space at that
time,
we would have seen
quite the other
picture

270-210 million years ago

The end of Permian – the beginning of Trias
About 275 million years ago

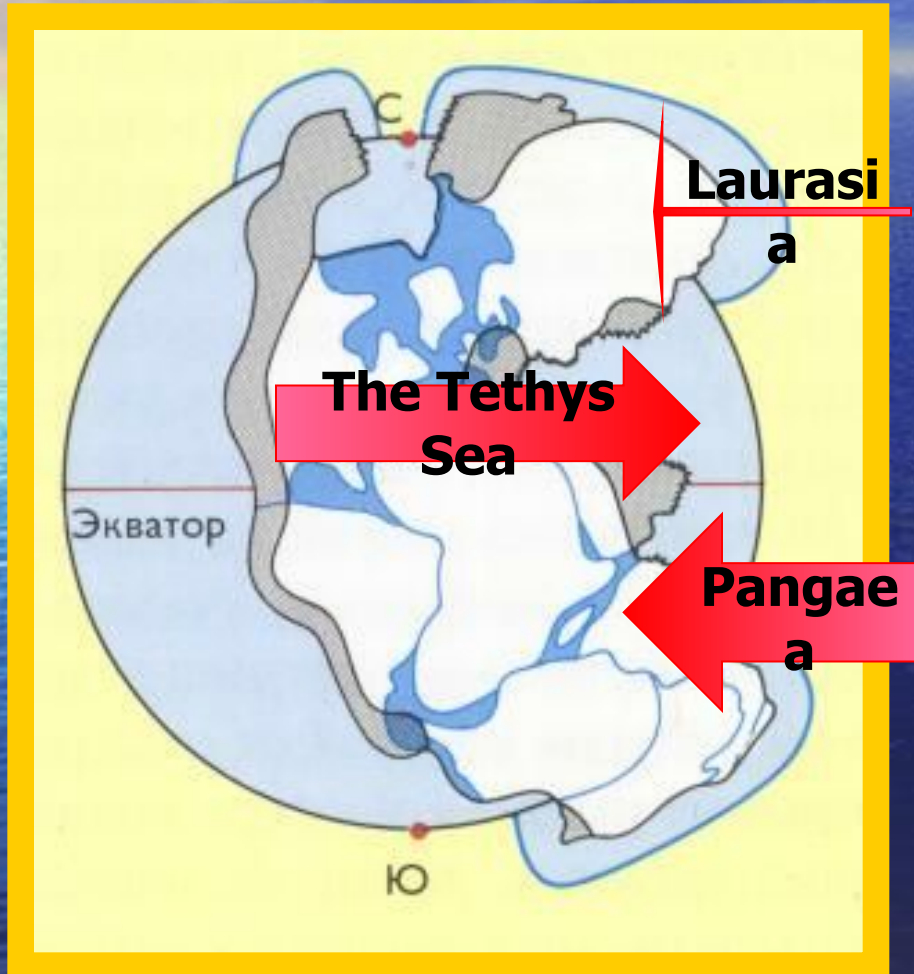
Euroamerica and
Angara
made a huge landmass

The Tethys Sea
Separated Laurasia

from the
protocontinent

of Pangaea.

Nowadays it is
the Middeteranian
Sea



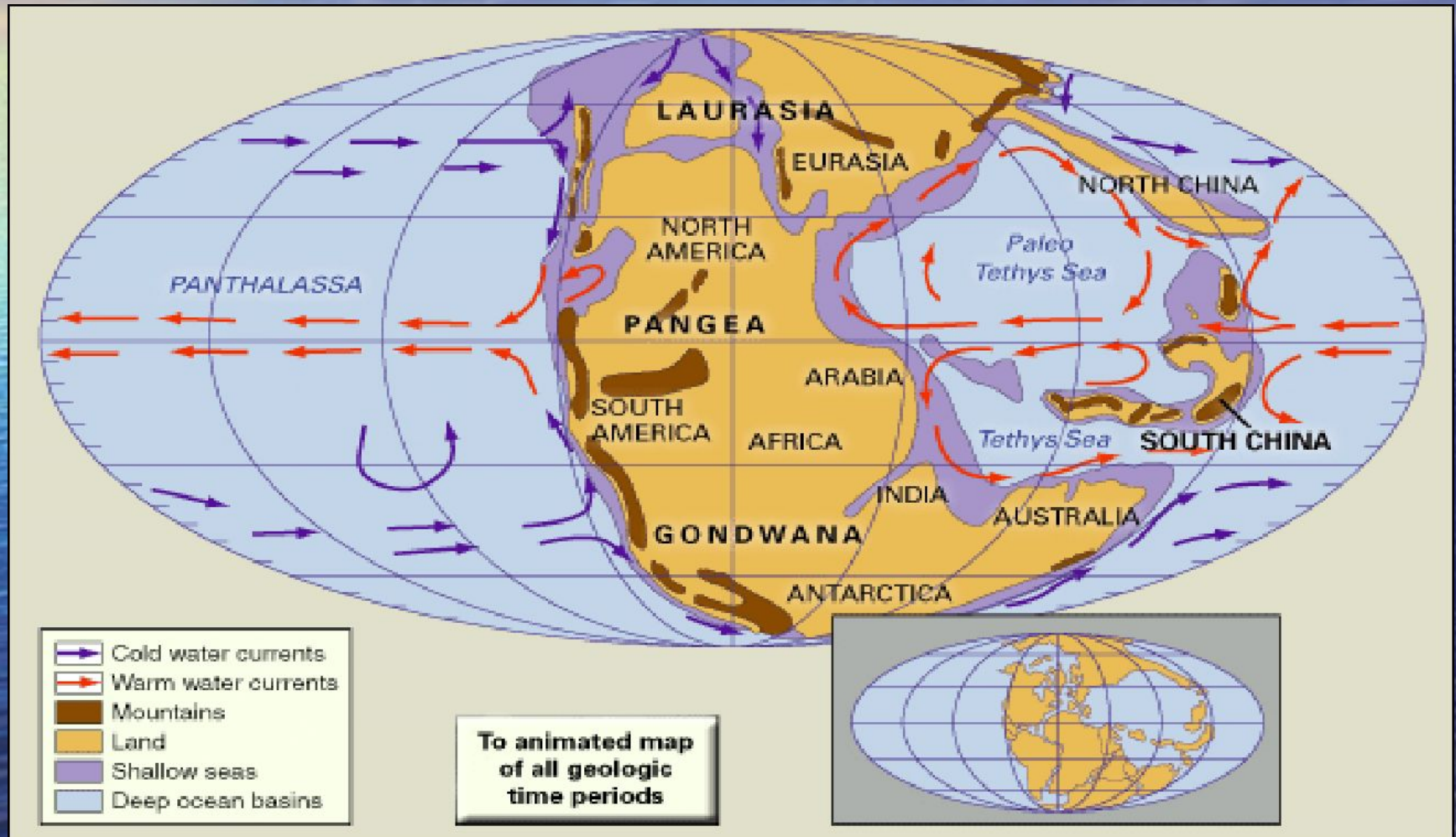
270-210 million years ago

The end of Permian – the beginning of Trias

- ❖ On land the vertebrates are represented in the Triassic by amphibians and reptiles.
- ❖ The first true mammals, which were very small, are supposed to appear in the Late Triassic.

Triassic Period:

continents and oceans of the Earth in Early Triassic time



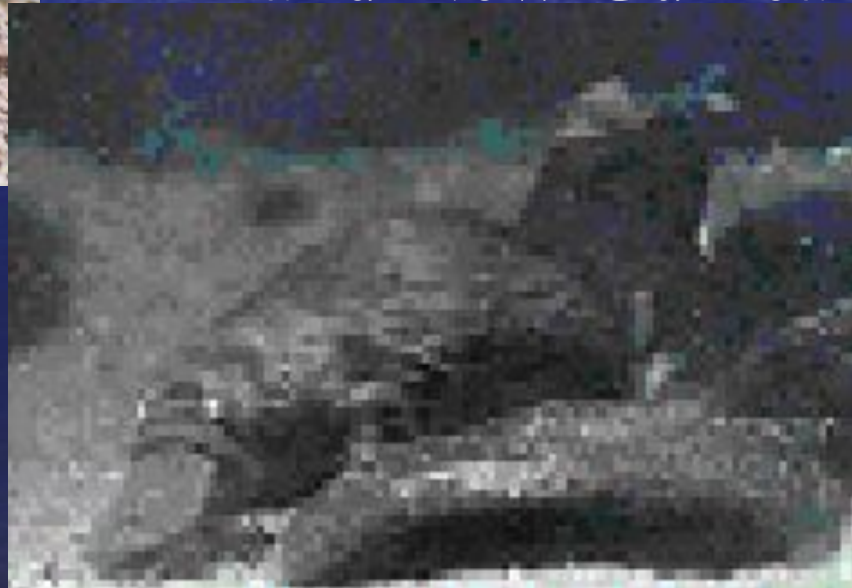
Monotreme



**short-beaked
echidna**

**amphibious
platypus**

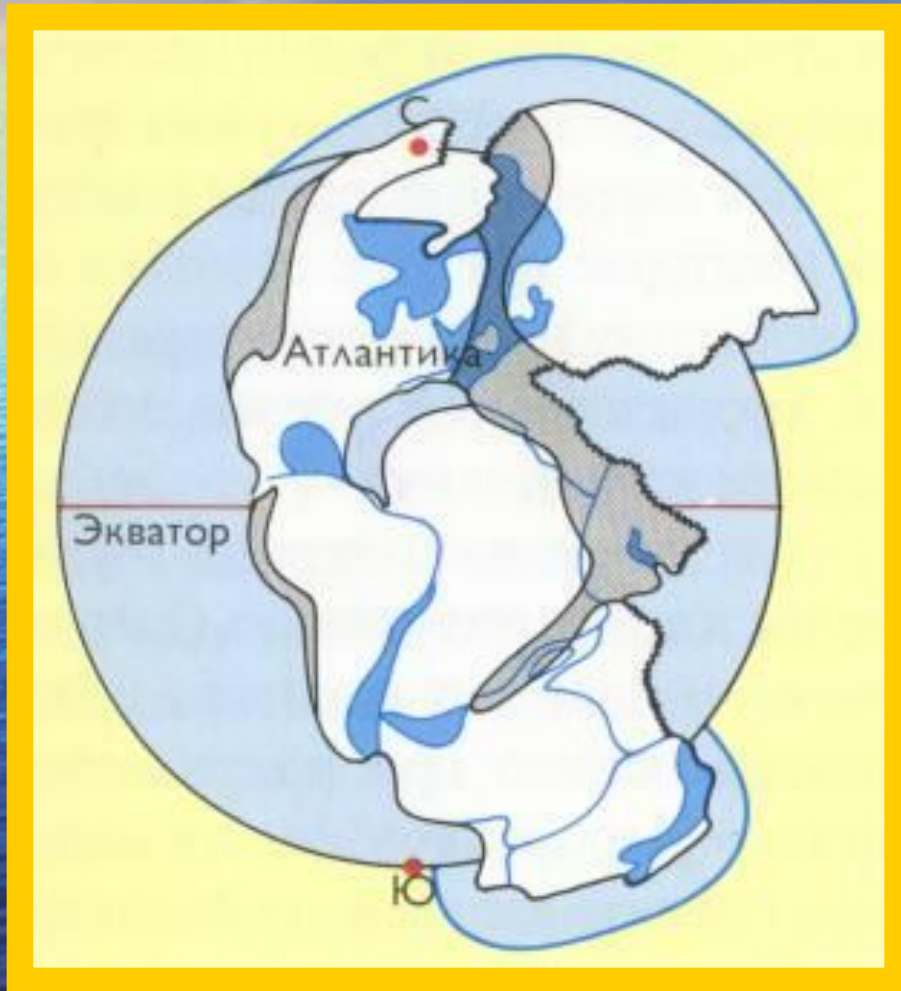
The egg-laying
mammalians include
the amphibious
platypus
and the terrestrial
echidnas
of Australia, Tasmania,
and New Guinea



180 million years ago

Middle Jurassic period

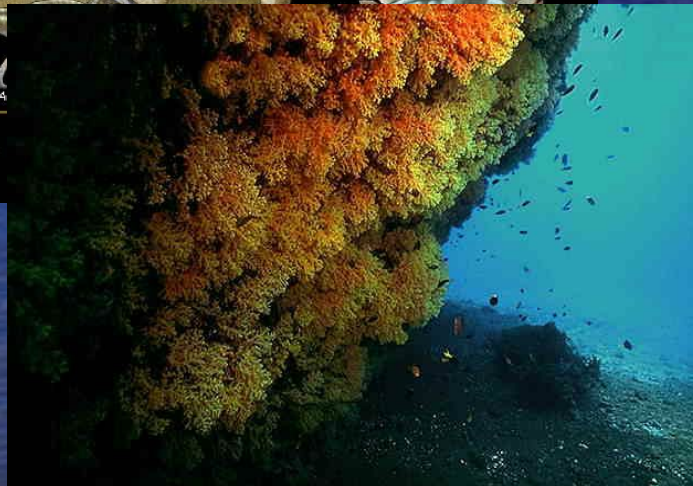
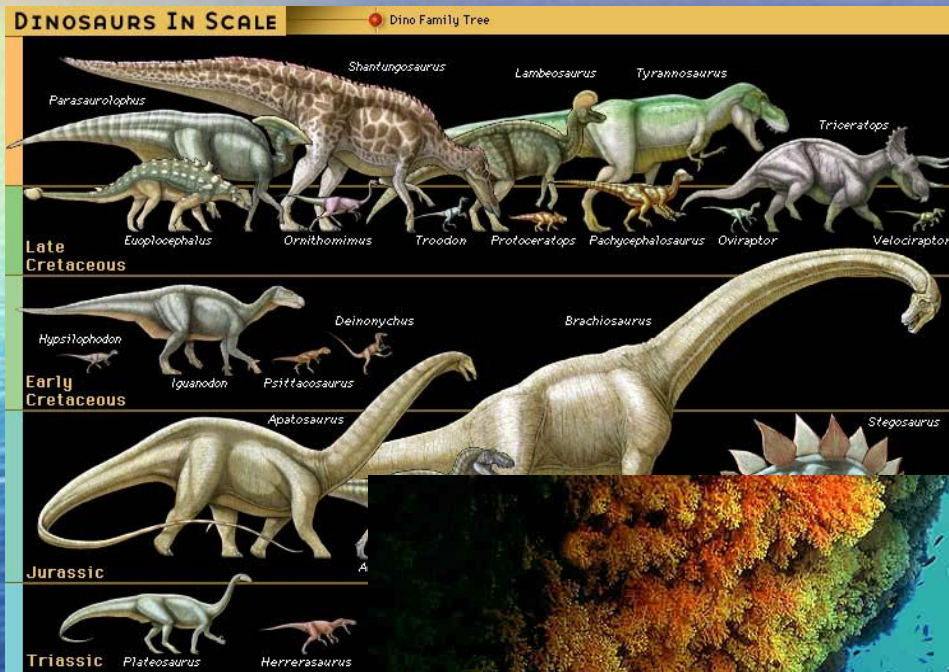
The protocontinent supposedly covered about half the Earth and was completely surrounded by a world ocean called Panthalassa.



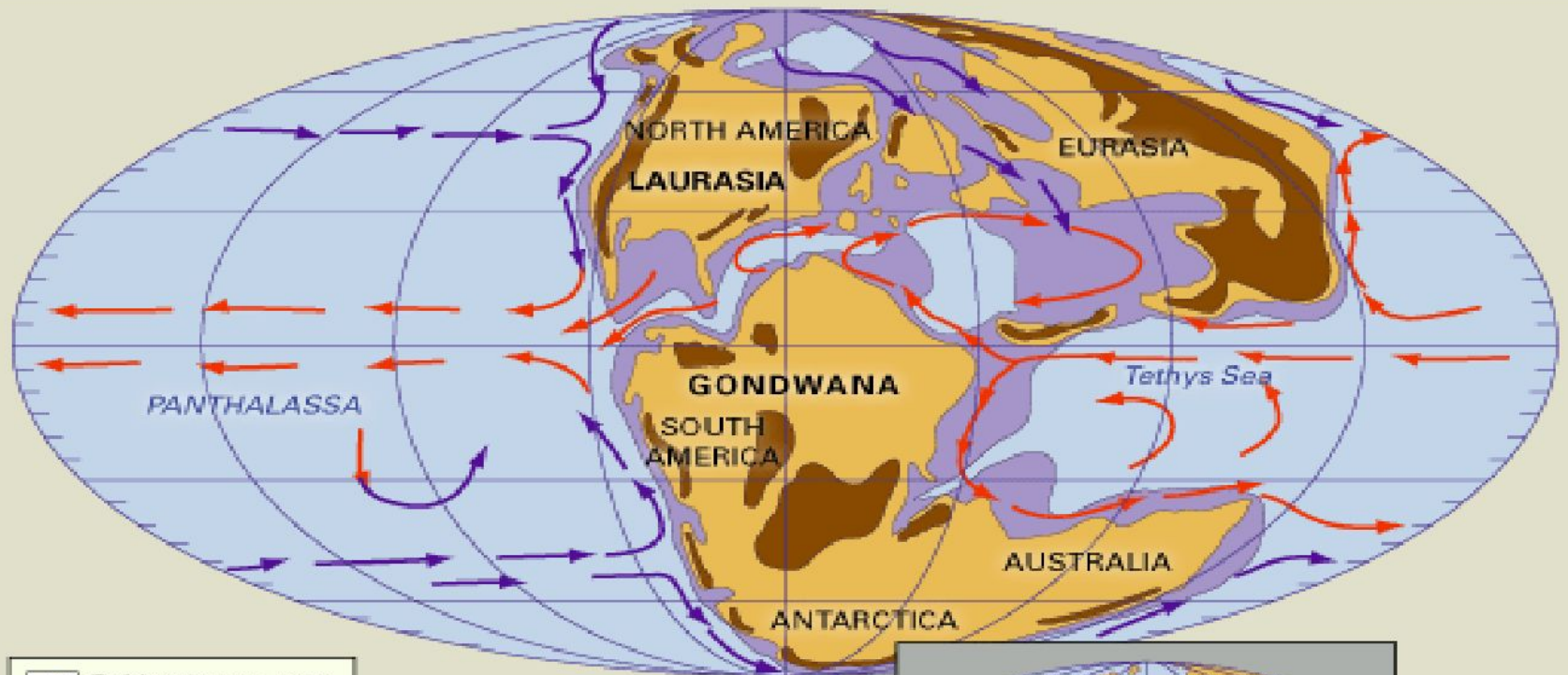
180 million years ago

Middle Jurassic period

- ❖ Dinosaurs and other reptiles emerged to dominate the land, sea, and sky.
- ❖ The first birds and new varieties of reefbuilding and other invertebrate faunas, provided Jurassic life with added complexity.



Late Jurassic Epoch: geochronological map



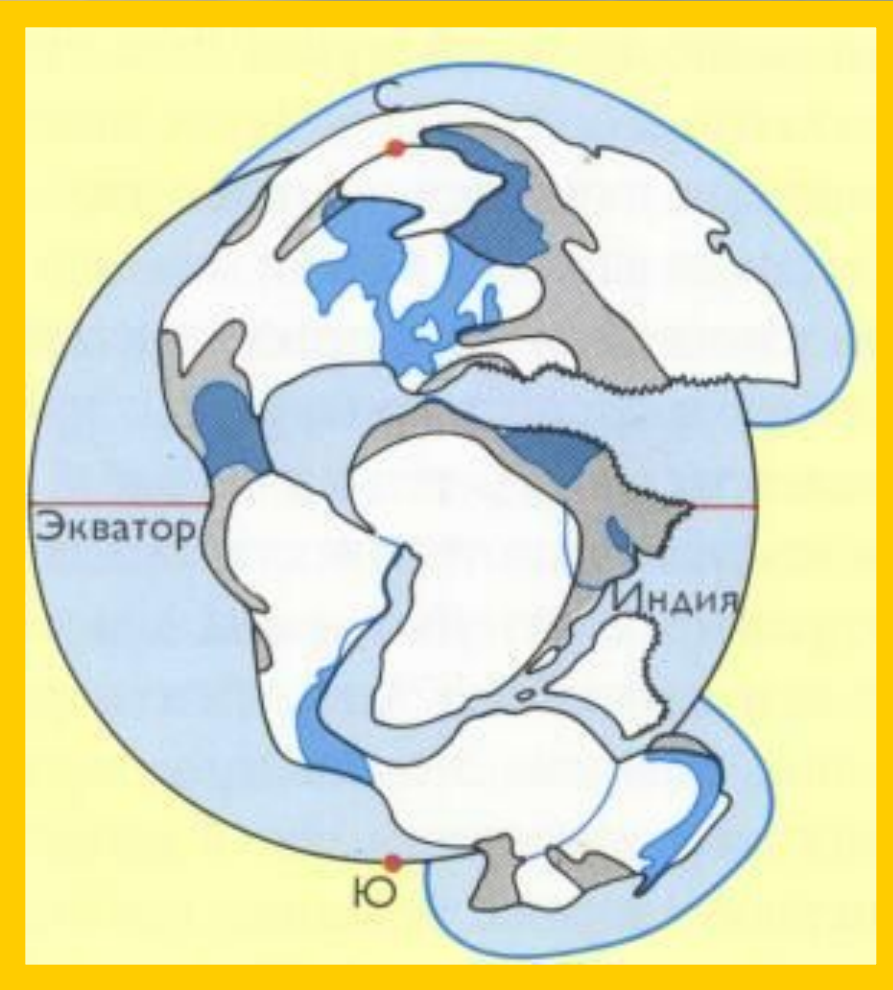
- Cold water currents
- Warm water currents
- Mountains
- Land
- Shallow seas
- Deep ocean basins

To animated map
of all geologic
time periods



100 million years ago

Early Cretaceous Period



Later Pangaea began to break apart. Its segments Laurasia and Gondwanaland gradually receded, resulting in the formation of the Atlantic Ocean.

100 million years ago

Early Cretaceous Period

**Two important groups of modern
mammals evolved
during the Cretaceous.**

Cretaceous placentals, smaller than those
of present-day ones, were poised to take over
the terrestrial environments
as soon as the dinosaurs vanished.

100 million years ago

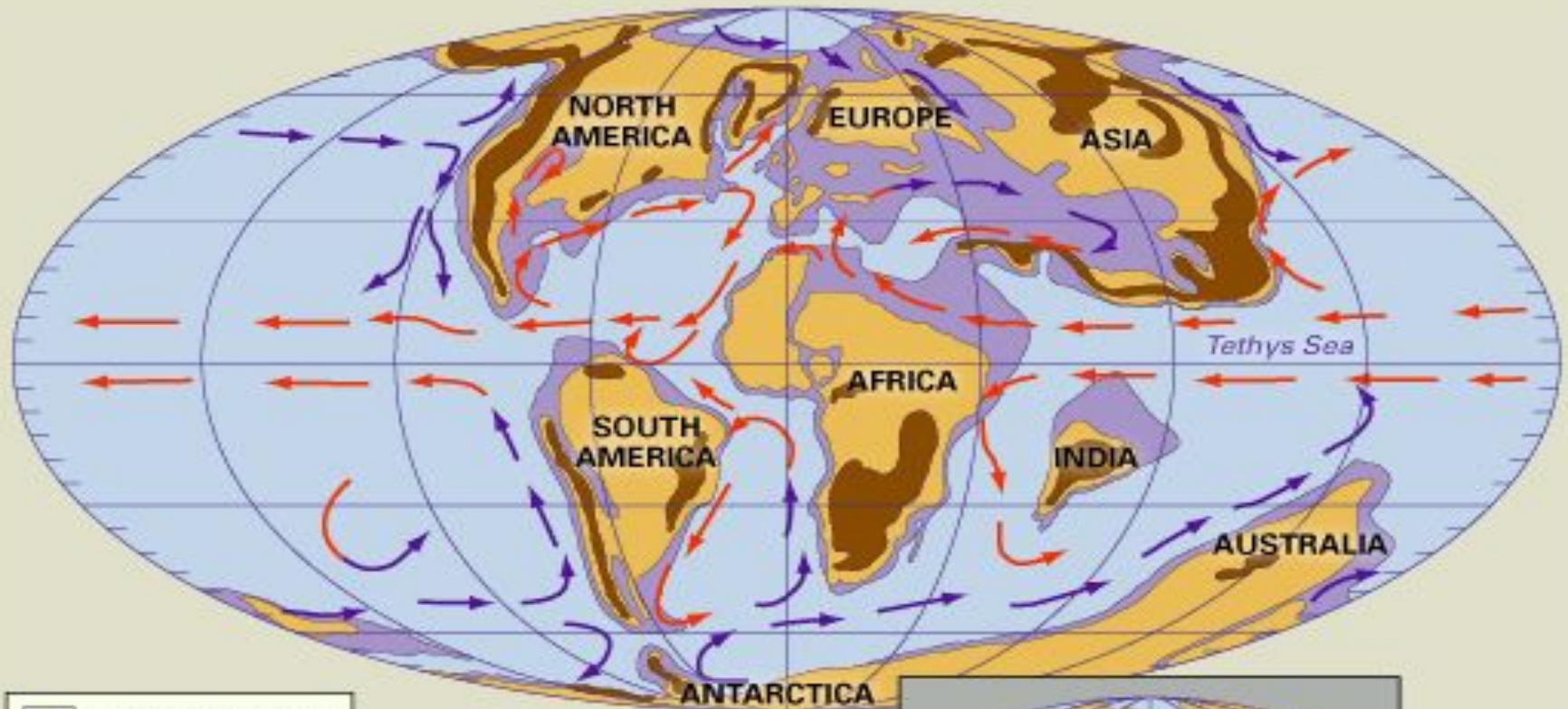
Early Cretaceous Period







Another mammal group, the marsupials, evolved during the Cretaceous as well.

This group includes the native species of Australia, kangaroos, koalas, and the North American opossum.



Late Cretaceous Epoch: geochronological map



-  Cold water currents
-  Warm water currents
-  Mountains
-  Land
-  Shallow seas
-  Deep ocean basins

To animated map
of all geologic
time periods



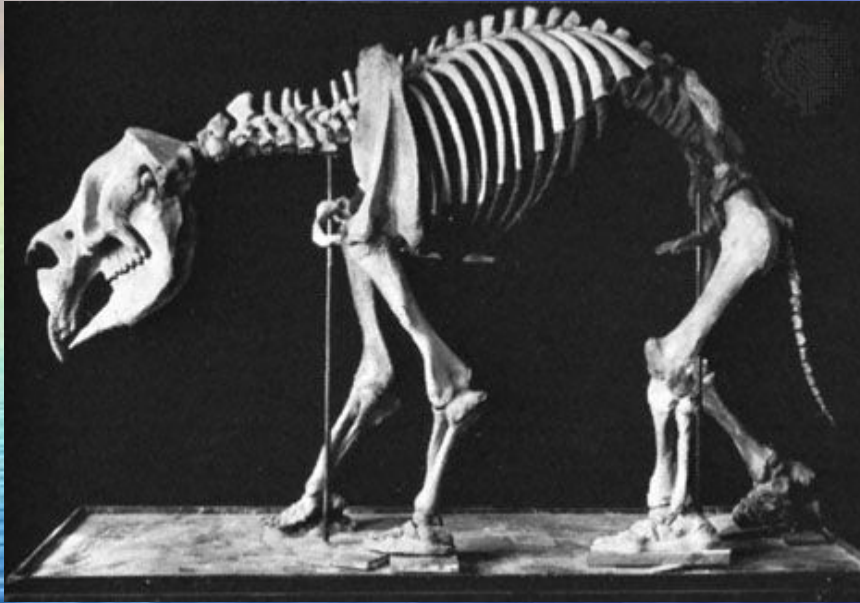
70 million years ago

The end of Cretaceous Period



The Late Cretaceous record is much more complete. It is known, for instance, that during the Late Cretaceous many dinosaur types lived in relationships like the present-day terrestrial mammals.

Diprotodon



extinct marsupial mammals
existed 30 - 10,000 years
ago
in Australia.

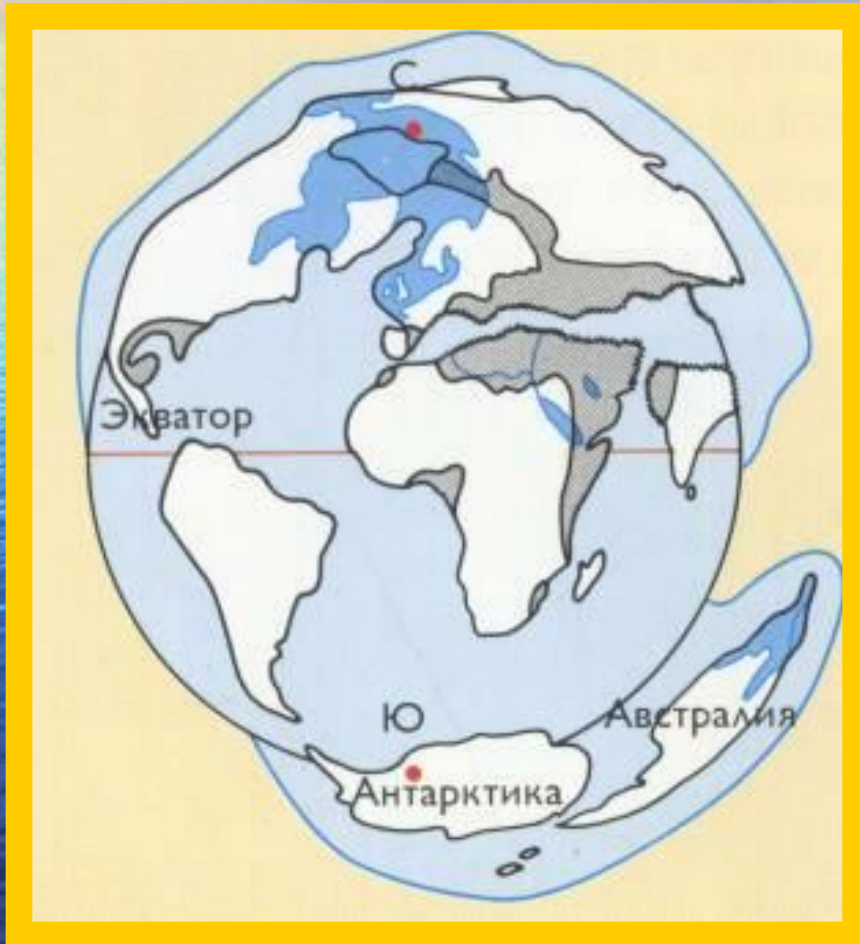
- ❖ characterized by a wombat-like body the size of a large rhinoceros.
- ❖ massively constructed skeleton to support its imposing bulk.
- ❖ well developed teeth of gnawing animals.
- ❖ herbivorous
- ❖ distantly related to kangaroos and wombats.

45 million years ago By that time
The beginning of Cenozoic era Australasia was
isolated

from all other
continental masses,
here marsupials
evolved
into many diverse
forms.

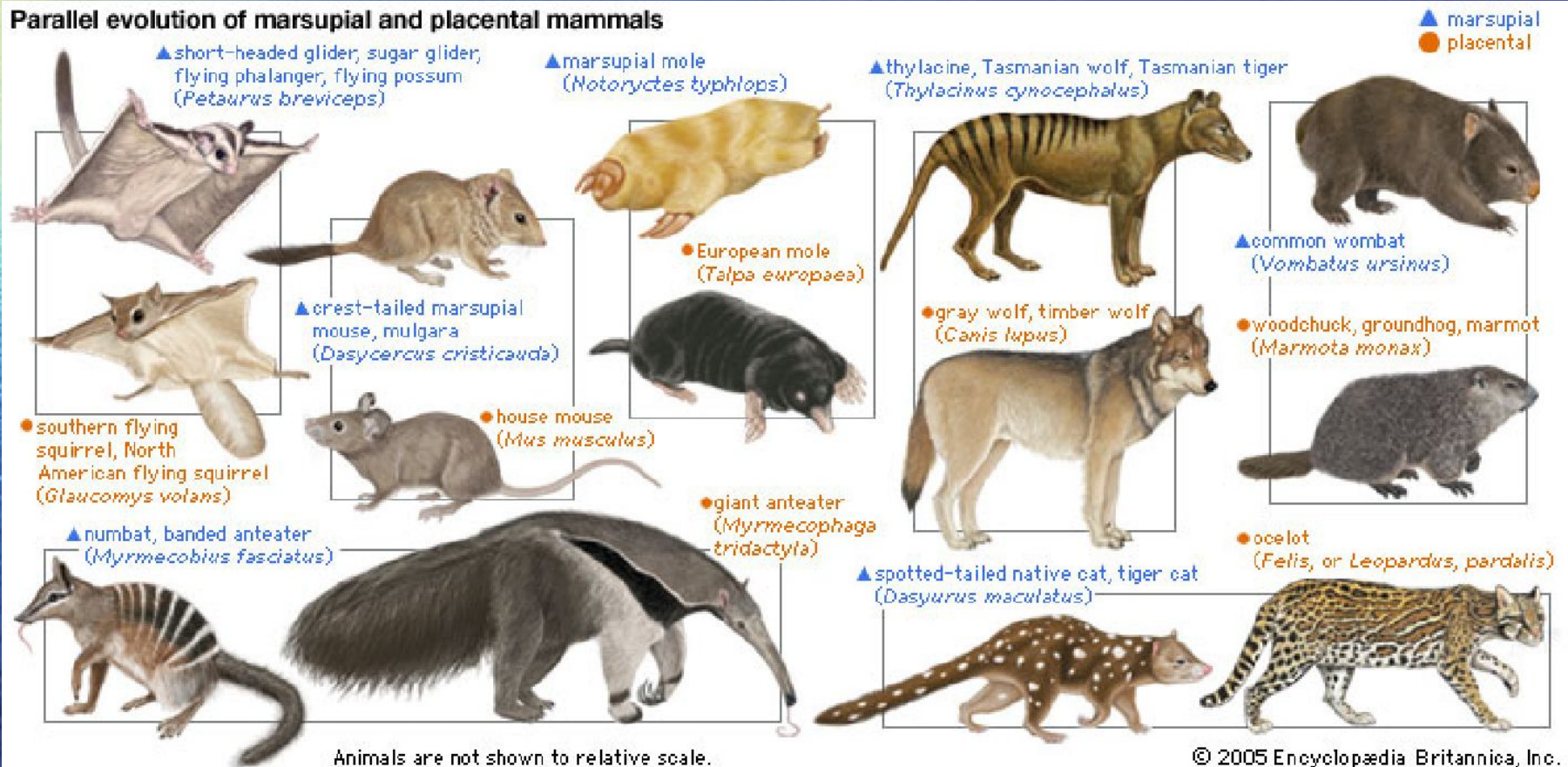
In South America
they survived
alongside placentals,
forming the

Neotropical

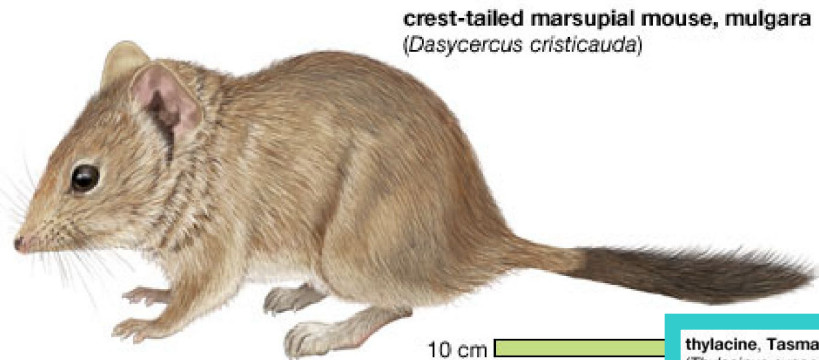


Structural and behavioral parallels with placental mammals are in some cases quite striking.

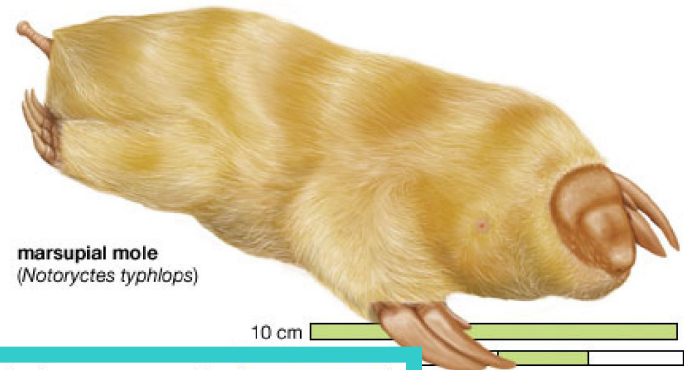
Parallel evolution of marsupial and placental mammals



There are marsupials that look remarkably like moles, shrews, squirrels, mice, dogs, and hyenas.

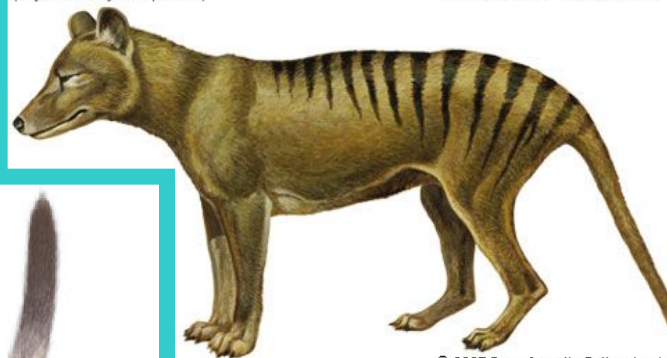


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thylacine, Tasmanian wolf, Tasmanian tiger
(*Thylacinus cynocephalus*)

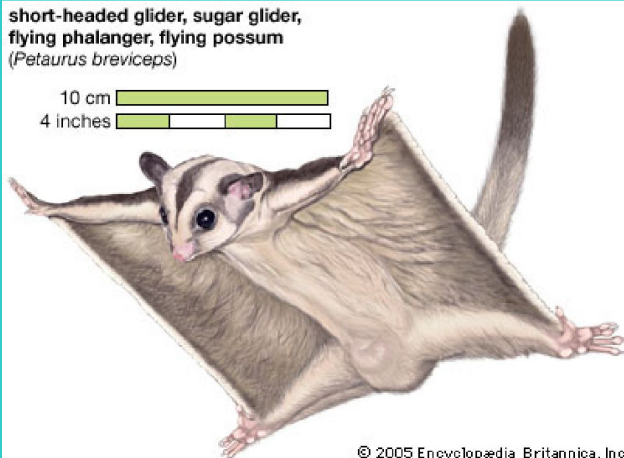
30 cm
12 inches



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short-headed glider, sugar glider, flying phalanger, flying possum
(*Petaurus breviceps*)

10 cm
4 inches



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The koala and the kangaroo
are the most well-known
marsupials.



Marsupials

Long-nosed
bandicoot



Spotted-tailed
quoll,
or native cat



Marsupials

Virginia,
or opossum



Marsupials



Red kangaroo

—

Wallaby



Western grey kangaroo

Marsupials



Kangaroo Rat



Dunnart,
a marsupial
mouse

Marsupials



Tasmanian Devil



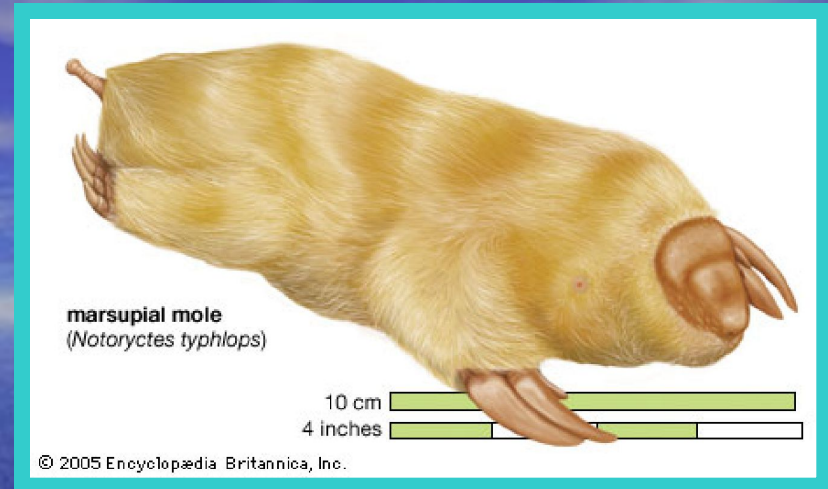
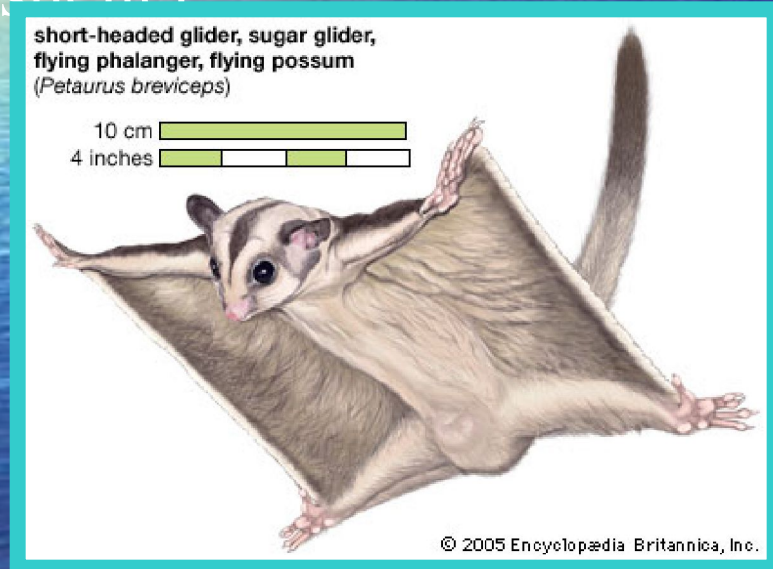
Wombat

Marsupials
The niches that marsupials
fill
are closely associated
with structure.



The diets of marsupials
are as varied
as the niches they occupy.

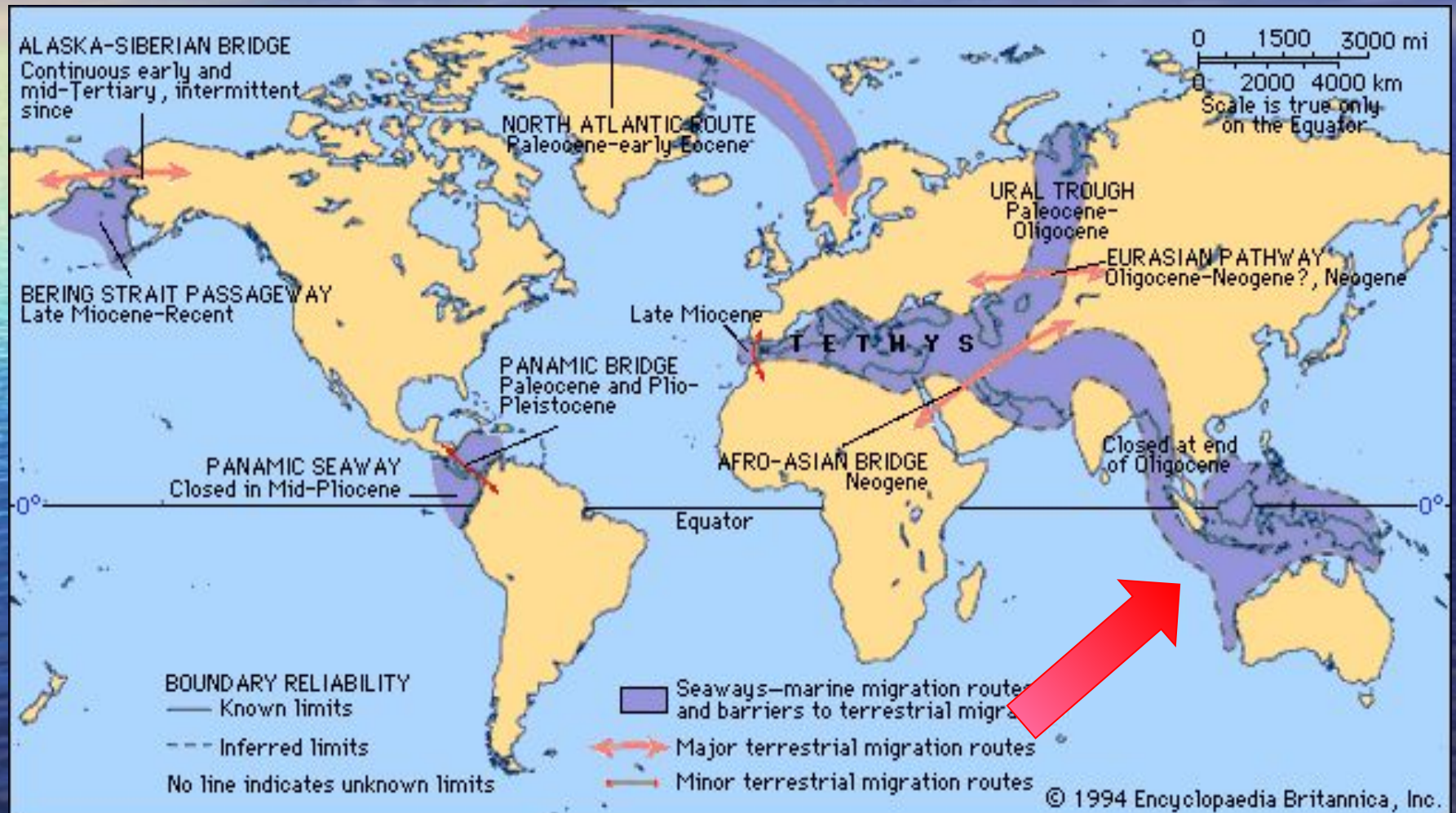
The burrowing species have powerful foreclaws with which they can tunnel into the ground for food and for shelter



The gliders have a membrane along either flank, attached to the forelegs and hind legs, that enables the animals to glide down from a high perch

Cenozoic Era:

faunal migration routes and barriers



The earliest isolation of Australia from
all the other continents made its fauna
unique



Literature

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