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Challenge to find a fossil in your area

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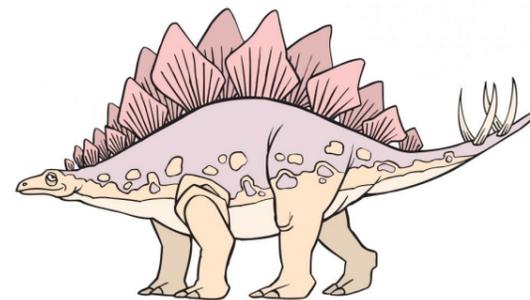
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Spot the difference puzzle:

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EMU POO CLUES



CAPTIVE: The only emus to be found in Tasmania now are on farms and in wildlife parks.

Pictures: iStock/ GlobalP/ JackF

Marsupial giants, and other discoveries

IMAGINE Kangaroos twice as tall as humans and goannas 6-metres long.

Well if you haven't heard already, these large animals, or mega fauna, once existed in Australia.

Scientists studying fossils found in central Queensland, recently revealed that the first people who lived in the area also shared the land with mega-reptiles, a giant bucktoothed wombat, and a three-tonne marsupial called a *Diprotodon*.

But did you know fossils of giant mammals have also been found in Tasmania?

A complete skeleton of a *Zygomaturus trilobus* was found at "Mowbray Swamp", near Smithton.

It is the second largest marsupial ever known to have existed behind *Diprotodon*, and a close relative.

Zygomaturus weighed about 500 kilograms, was 1.5m tall and 2.5m long.

It became extinct about 45,000 years ago.

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DID you know that emus once roamed wild in Tasmania?

In fact emus were spread throughout the Midlands, North-East and North-West.

After coexisting with Aboriginal people for 40,000 years, it is believed the early colonists may have hunted them to extinction.

But other factors, such as changes to their habitat, may not have helped either.

The last of Tasmania's emu died in captivity in 1873.

It is interesting to think about what Tasmania's environment would be like if wild emus still existed here.

Researchers at the University of Tasmania, Tristan Derham and Matthew Fielding, want to know the answer to that question and many others, and they are trying to find out by studying emu poo.

Not Tasmanian emu poo, but poo from emus in Wilsons Promontory, in Victoria.

Emus help plants to spread, because they roam far and

wide and their poo is full of seed, so if we still had them in Tasmania our landscape would be quite different, perhaps better.

Matt said by looking at what emus in Victoria eat, the scientists can consider what Tasmanian emus might have eaten and what seeds they may have dispersed.

"Wilson's Promontory has similar vegetation to North-East Tasmania," he said.

"We are finding that emus basically eat anything.

"We are finding thousands of seeds from at least 30 species of plants."

One interesting find was the seed from a type of kangaroo apple called *Solanun opacum*.

"This species is widespread on the mainland but has experienced declines across Tasmania, potentially a result of the extinction of the Tasmanian emu," Matt said.

Growing up, neither Tristan nor Matt knew there were Tasmanian emu.

Tristan said he only found out a few years ago when a friend told him.

"I went and read a lot of old diaries and reports from the early colonists and I was fascinated to discover that emus were really important to them, especially as food," he said.

"They were also important to Aboriginal people in Tasmania, who managed the landscape so there would always be emus.

"Aboriginal people painted emus, carved emu images into rocks, sang about them and did emu dances."

It is believed Tasmanian emus were a bit smaller, but in most other ways were very similar to their mainland relatives, which makes you wonder what might happen if emus were reintroduced?

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Your challenge is to find a fossil

Emu poo clues to provide answers

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Fossil Bluff, near Wynyard, in North-West Tasmania, has that name for a reason.

The fossilised bones of another extinct marsupial, *Wynyardia bassiana*, were found there.

Wynyardia was around about 23 million years ago, and was similar to a possum, but much larger.

An amazing find occurred on the Tasman Peninsula in 2007, when two people on a beach walk found the 250-million-year-old remains of a dicynodont.

Dicynodonts had tusks more than 10 centimetres in length, a horny beak, were the size of a bull and were the ancestors of modern mammals.

Of course, Tasmanian fossils are not limited to mammals.

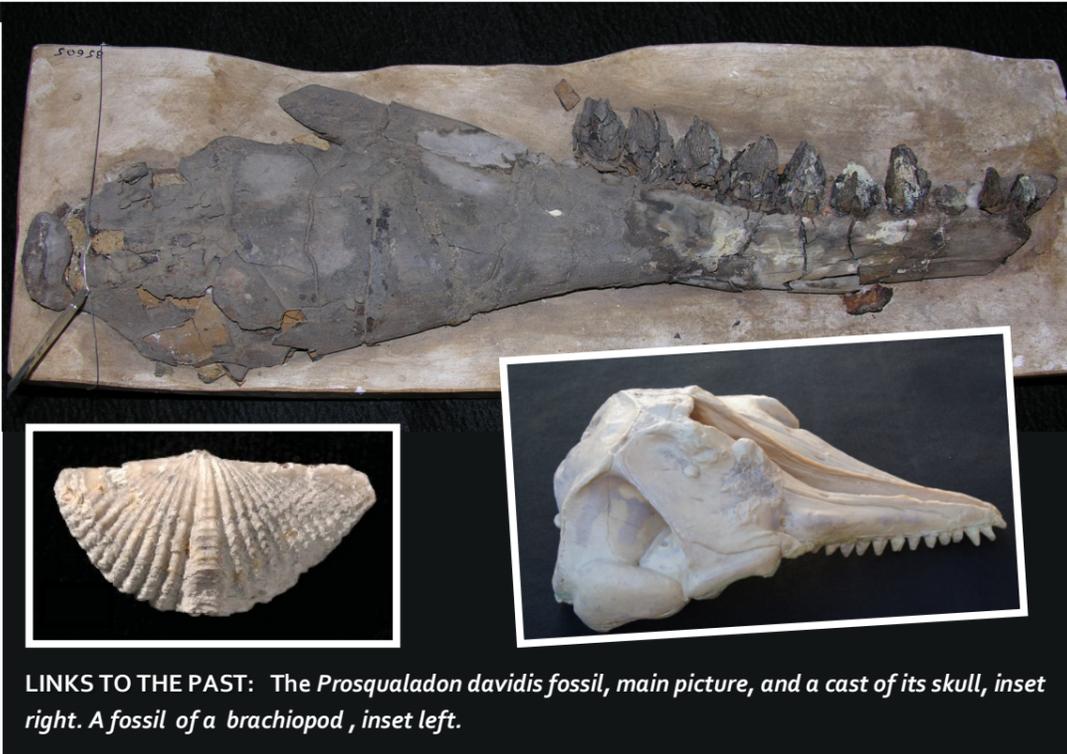
There are many types commonly found in areas all around the state from animals and plants which existed before dinosaurs.

In about 1920 the fossil of an ancient whale, *Prosqualodon davidis*, was found by Professor T.T. Flynn, Professor of Zoology at the University of Tasmania.

It was described in *The Australian Museum Magazine* in 1923, as "one of the finest fossils yet discovered".

Prosqualodon was an extremely fierce fish-feeder with shark-like serrated teeth.

The remains of are kept at the University of Tasmania.



LINKS TO THE PAST: The *Prosqualodon davidis* fossil, main picture, and a cast of its skull, inset right. A fossil of a brachiopod, inset left.

Rock Library and Geological Museum curator Isabella von Lichtan recently made a cast of its skull for the TV program *Coast Australia* on Foxtel's History Channel.

The remains of *Tasmaniosaurus*, a primitive reptile from which dinosaurs evolved, was discovered in 1960 at the Knocklofty sandstone quarry in West Hobart.

Tasmaniosaurus was put on public display for the first time at last year's Dinoaur rEvolution at the Tasmanian Museum and Art Gallery (TMAG).

It dates back to the Early Triassic Period - up to 250 million years ago.

The rocks at Knocklofty are part of a large area of rocks known as the Tasmanian Basin, which were formed when Tasmania (and the rest of Australia) were joined to form a supercontinent called Gondwana.

Tasmania has many marine fossils from the Permian Period, 250-300 million years ago.

They are mainly coral-like or fan-shaped creatures called bryozoans, and shell animals called brachiopods.

But there have also been many fossils found of arthropods, large amphibians, fish and reptiles from the Triassic Period.

The University of Tasmania,

and Children's University Tasmania learning destinations, TMAG and QVMAG, have large collections of fossils.

Have you ever found a fossil?

Your challenge is to have a look at the rocks around you next time you are out walking in the bush, by the river or at the beach.

If you find what you think might be (or definitely is) a fossil, it would be best to leave it where it is.

But take a photo or draw a picture of the find, and keep a record of where you found it, and remember to share your interesting finds with us:

UnderwoodCentre.Enquiries@utas.edu.au

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Tristan and Matt wonder that too, but they know reintroducing an animal anywhere is a very big decision.

Tristan said there were lots of questions to be answered.

"Would they make our landscapes better?"

"Could we live alongside them as fellow creatures?"



SAMPLE: Matt Fielding with a bag of emu poo.

"We are interested in all those questions," he added.

Matt said the emu poo collected from Victoria was flown back to Hobart on passenger airlines.

"We get some interesting reactions when we check-in a box full of emu poo," he said.

Once at the lab in Hobart, the poo is put through sieves and the seeds are picked out and dried for further analysis.

It is believed emus lived in Tasmania for more than 135,000 years.



Solution to penguin challenge

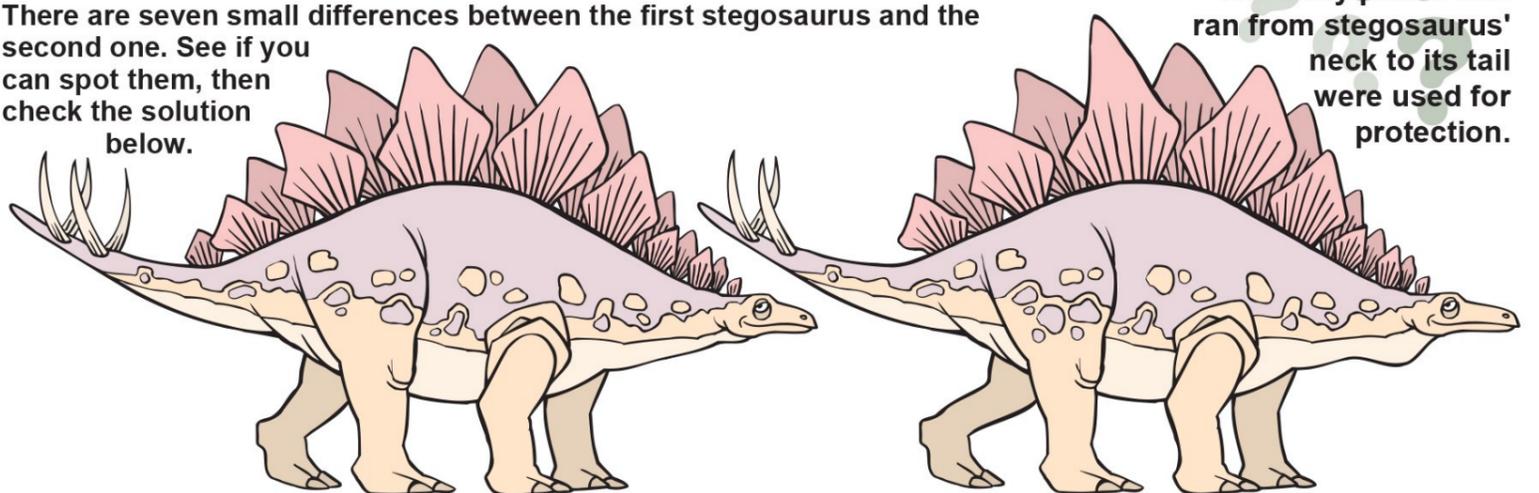
LAST week you were challenged to identify the world's two smallest and largest penguins.

Little blue penguins are the smallest, followed by Galapagos penguins.

Emperor penguins are easily the largest, twice the weight of the next largest - king penguins.

SPOT THE DIFFERENCE

There are seven small differences between the first stegosaurus and the second one. See if you can spot them, then check the solution below.



SOLUTION: 1. Spike on tail missing, 2. Back leg changed, 3. Extra spots on leg, 4. Plate in middle of back bigger, 5. Plate at base of tail missing, 6. Throat changed, 7. Head longer.

DID YOU KNOW?

The bony plates that ran from stegosaurus' neck to its tail were used for protection.