

**QUEENSLAND  
MUSEUM**  
KURILPA

# Croc!

**LOST GIANTS TO LIVING LEGENDS**  
**LARGE PRINT BOOK**



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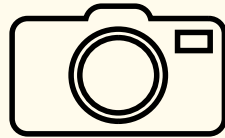
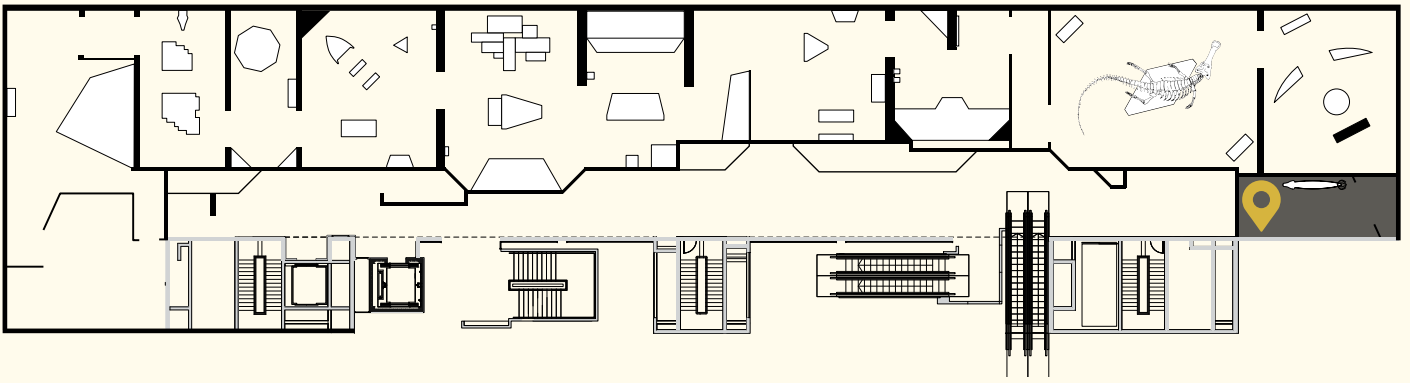
**MUSEUM  
AND ART  
GALLERY**  
NORTHERN  
TERRITORY

 NORTHERN  
TERRITORY  
GOVERNMENT

*This exhibition is a collaboration between the Australian National Maritime Museum, Queensland Museum and Museum and Art Gallery of the Northern Territory.*

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# PHOTOGRAPHY

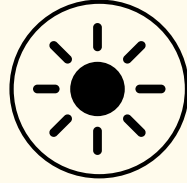
Photography is permitted  
for personal use.

No flash, tripods or selfie sticks please.



Share your stories using

#CrocQM #QMKurilpa @QldMuseum



# **LOW LIGHTING ALERT**

Uncontrolled light conditions can cause irreparable damage to museum collections.

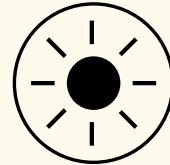
Croc! Lost Giants to Living Legends is a very low light exhibition to preserve these objects for future generations.



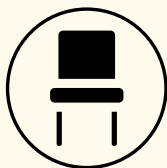
# ACCESSIBILITY



Interactive and  
touch objects



Light projections



Seating



Usually noisy



# AUDIO AND AUSLAN DESCRIPTIONS

Scan or click the QR code to connect to our audio & Auslan descriptions.



# ACKNOWLEDGEMENT OF COUNTRY

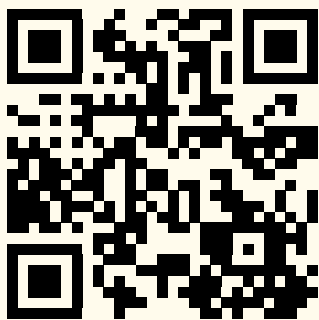
The *Croc!* exhibition team acknowledges the First Peoples – the Traditional Custodians of the lands, waters and sky where we live and work.

We honour their unbroken connection to Country, culture and community and the ancestral knowledges shared in the exhibition.

We pay respect to Elders past, present and future. We recognise our shared history and commit to embedding First Nations voices in our stories.

# CULTURAL ACKNOWLEDGEMENT

This exhibition includes First Nations objects collected under past practices that are now understood as unacceptable. We acknowledge Queensland Museum's role in Australia's colonial history and the impact of historical attitudes that disregarded the cultural significance of these objects. Today, we prioritise self-determination and community consultation in all exhibitions featuring cultural objects. If you or your community have further information about the First Nations objects on display, please contact us via the QR code below.



# CULTURAL WARNING

First Nations people are advised that this exhibition may contain sensitive artefacts, materials, images, voices and sounds.

# Carved canoe

Vincent Babia, Saibai and Seisia clan groups, 2025.

Clan: Ayth Koedal

Totem: Crocodile

Wind: Sager Gub

Babia's art reflects stories and cultural knowledge and often features his totem – the crocodile.

Single-hull canoes like this one are used on Saibai for travelling through swamplands to reach garden areas on the island.

## ***Koedalaw Girer* (crocodile dance)**

Totem: Koedal

Stars: Zugubaw Baydham

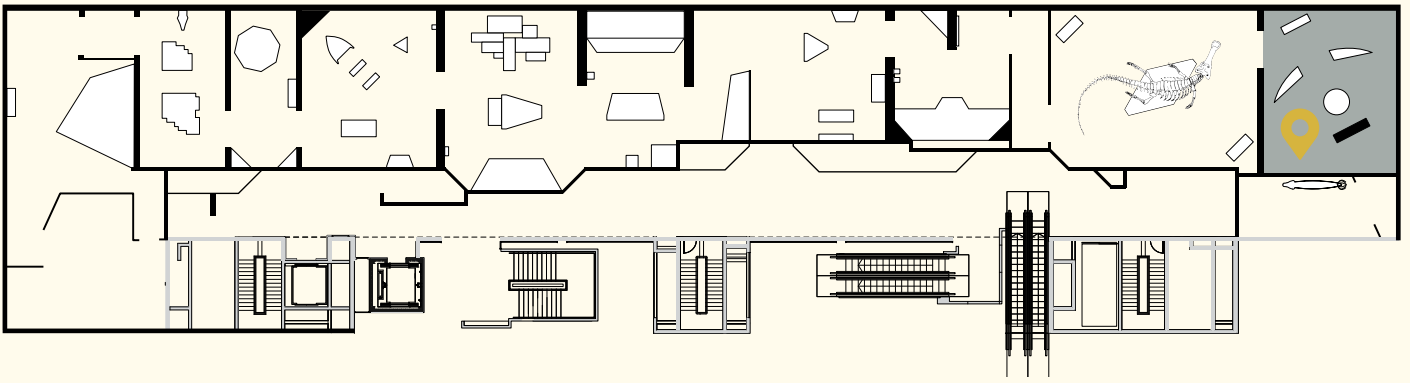
Wind: Kuki Guuba

Badu Island artist Alick Tipoti and his sons created this dance, and the headdresses they wear to perform it, to celebrate and respect their totem – the crocodile.

Traditional practices such as these connect individuals to land, Ancestors, and spirituality, keeping cultural memory and identity alive.

See and learn more about Alick's work inside the exhibition.

# **CROC! LOST GIANTS TO LIVING LEGENDS**



Our relationship with crocodiles is ... complicated.

They're incredible animals - expert predators whose ancestors ate dinosaurs - and we've lived alongside them for thousands of years.

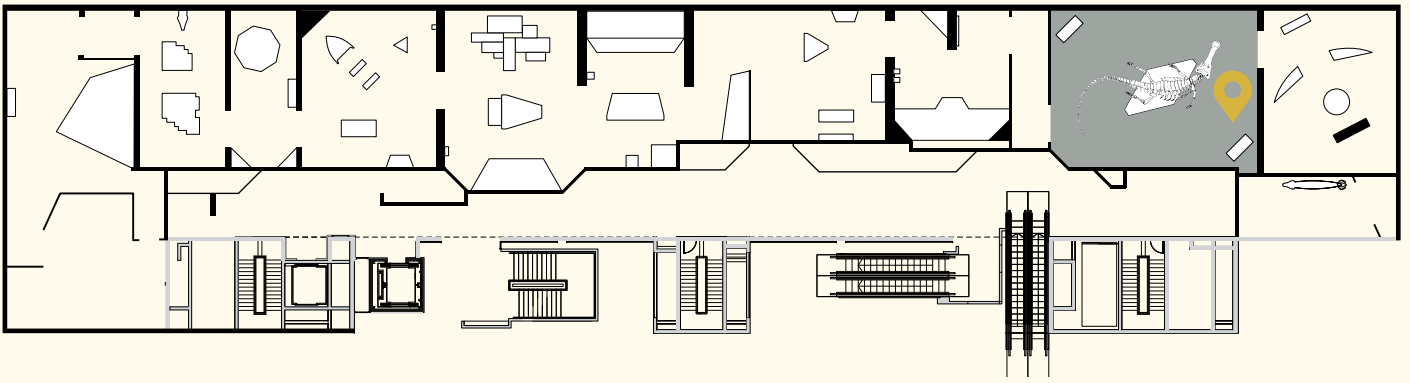
They fascinate and frighten us.  
We put them in our horror movies  
and our children's picture books.

We worship them and wear them,  
fear them and farm them.

We study them and showcase them,  
conserve them and cull them.

You'd better come and meet them!

# LOST GIANTS



# LOST GIANTS

Crocodiles are *not* living dinosaurs.

Dinosaurs and crocodylians share an ancient ancestor but evolved separately.

The first crocodylians evolved about 200 million years ago in the Triassic period and lived alongside the dinosaurs.

For the first 20 million years, most crocodylians were land-based, before some evolved to live in lakes, swamps and even seas. Their bodies adapted, changing into different shapes and sizes to suit where they lived.

Some were enormous. Sarcosuchus (sar-co-sue-cus) the 'SuperCroc' appeared 113 million years ago. It was 10-12 metres long – twice as big as today's biggest crocs.

# Colossal crocs

This is *Sarcosuchus imperator* (sar-co-sue-cus im-per-rate-oar).

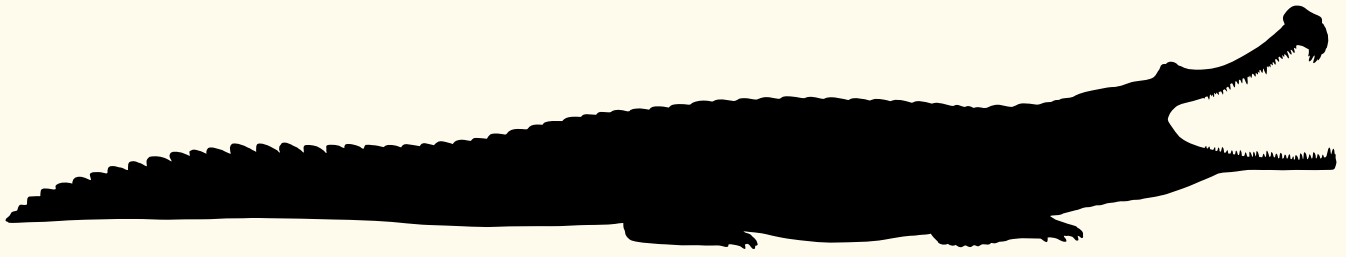
Its name means 'flesh crocodile emperor' but it's commonly called 'SuperCroc'.

It was one of the largest crocs ever. Its huge jaws had more teeth than a *T. rex* – it could eat dinosaurs for breakfast!

This is a replica moulded from bones found in Niger, West Africa, by US palaeontologist Prof. Paul Sereno.

Credit: *Sarcosuchus imperator* vs *Suchomimus tenerensis*.  
Artwork by Raúl Martín.

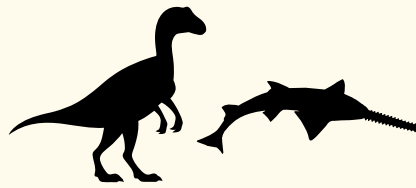




**Length: 12 m**



**Weight: 8,000 kg**



**Diet: fish up to dinosaurs**

# Little local

While SuperCroc ruled Africa, in what's now Australia we had *Isisfordia duncani* (eye-sis-ford-ee-ah dun-can-eye).

This little skeleton is a full-sized *Isisfordia* – they were one of Australia's smallest extinct crocodilians. They lived 92–100 million years ago, alongside Australia's biggest dinosaurs.

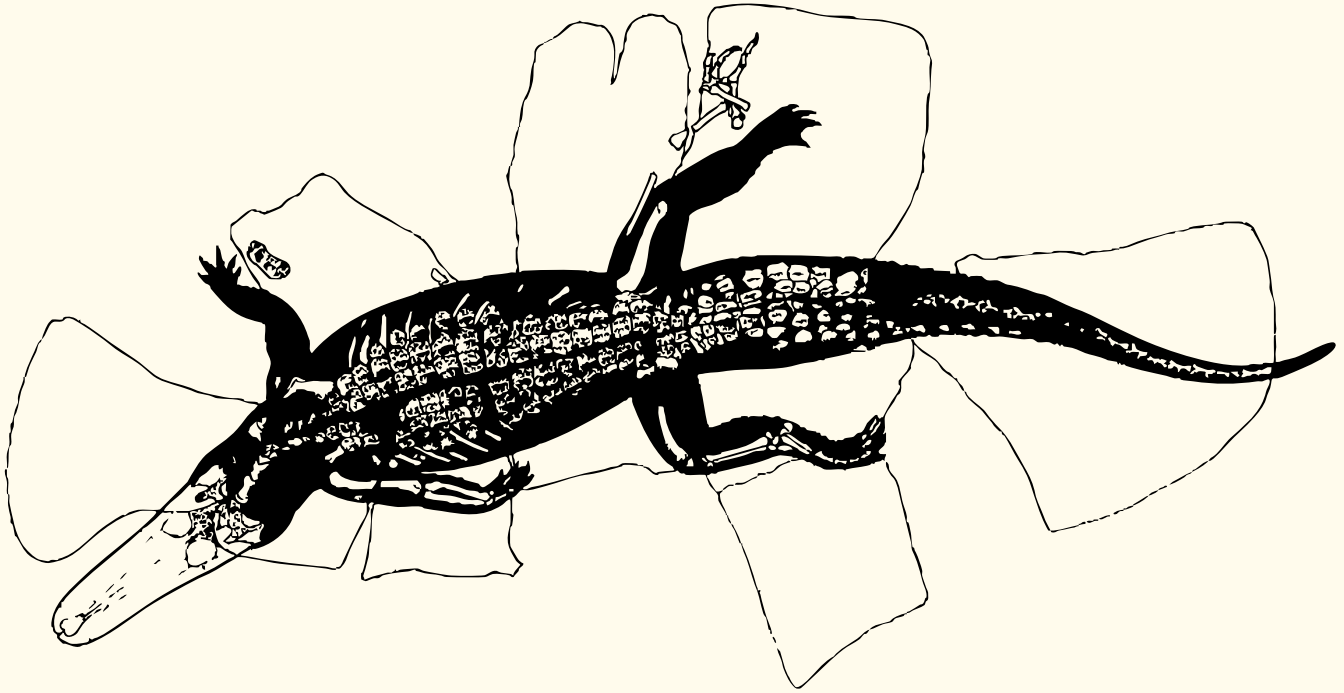
The name comes from where it was found and who found it – near the town of Isisford in central-western Queensland, by the former Deputy Mayor, Ian Duncan.

This is a replica. The original *Isisfordia* is on display in Dinosaurs Unearthed on Level 2.

Queensland Museum collection

Image credit: Andrey Atuchin, Vlad Konstantinov and Scott Hocknull © Queensland Museum





**Length: 1-1.5 m (more of a 'Super-cute-croc'!)**

Outline of body shape with fossil. Despite being so old, it looks a lot like today's crocodiles, suggesting it may be a close relative.

Image credit: Laurie Bernie © Queensland Museum



**Weight: less than 20 kg**



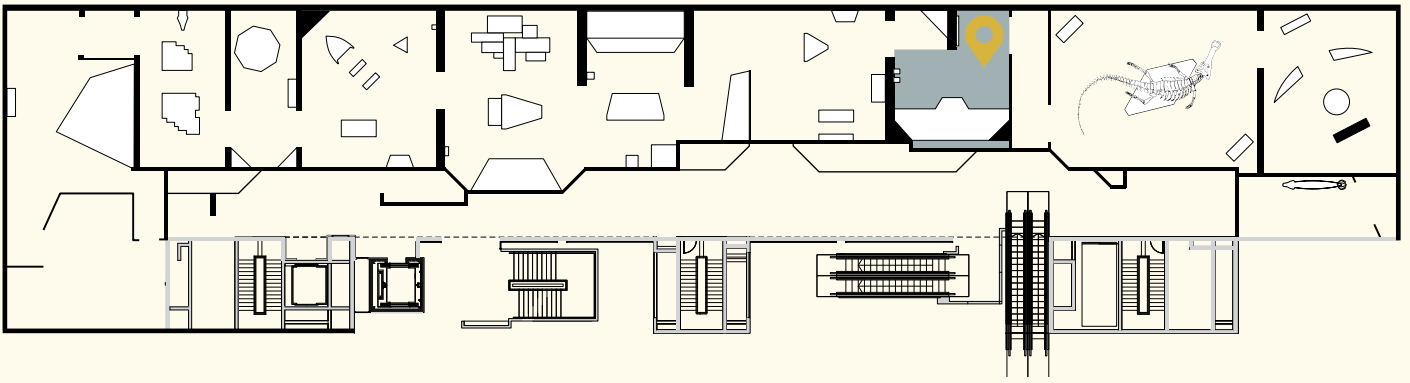
**Diet: insects up to small animals**



## Croc Bites

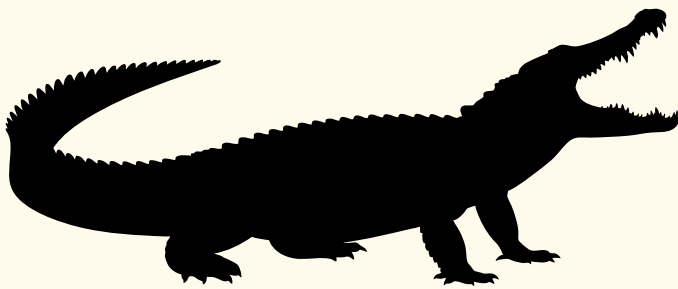
The 'suchus' in 'sarcosuchus' comes from the Greek word *souchos*, for the Egyptian croc god Sobek.

# TODAY'S CROCS

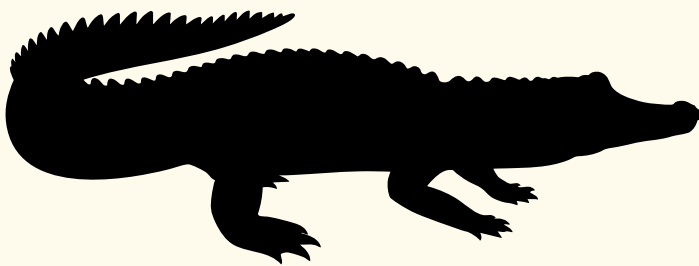


# TODAY'S CROCS

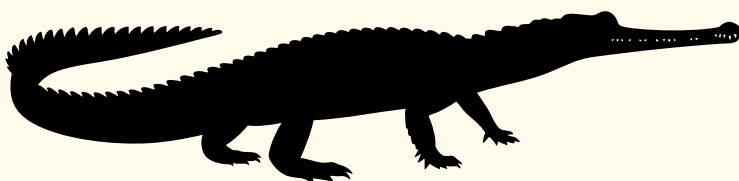
Today we have 26 species of crocodilians across the world, divided into three families (research may find more):



Crocodiles – 16 species



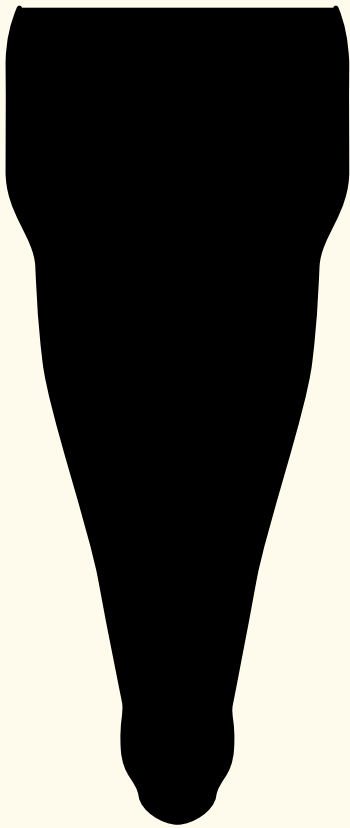
Alligators and caimans – 8 species



Gharials and false gharials – 2 species

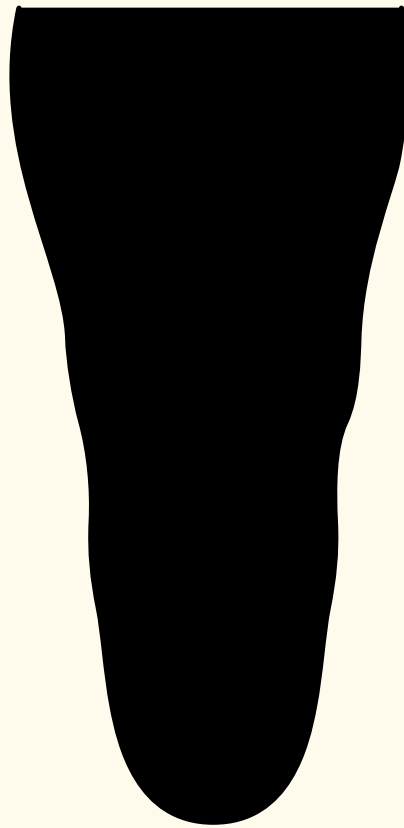
The easiest way to tell them apart is by the shape of their snouts.

Imagine they're balancing on the tips of their noses:



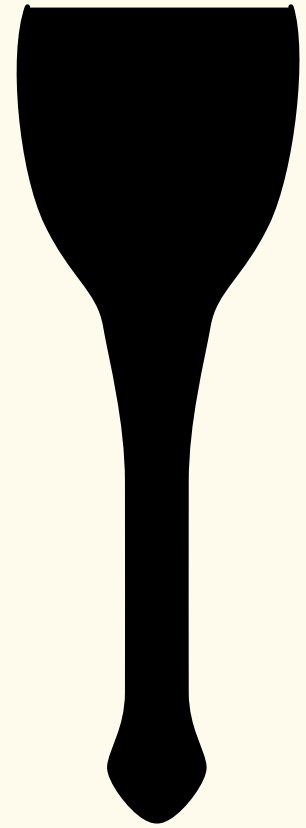
**Crocodiles**

have pointed  
V-shaped snouts



**Alligators**

have blunter  
U-shaped snouts



**Gharials**

have skinny  
I-shaped snouts

They all live in aquatic environments - rivers, lakes and coastlines - in warm climates.

# CROCKING ALL OVER THE WORLD



## CROCODILIAN FAMILIES

Crocodiles
  Alligators and caimans
  Gharials

Here's where the crocodilians live today.

They're found on five of the seven continents.

The map shows which families live where, and in what numbers.

But warming climate and habitat loss are changing things. Some species may move, others may not survive.

# SKULL SELECTION

These skulls are from 16 of the 26 crocodilian species currently recognised. Most are replicas (four, including the two Australian species, are real).

Crocodilian skulls provide clues about their lives.

Their size and shape reveal their species and what they've adapted to eat. Heavy-duty skulls handle bigger prey. Slender skulls snap up speedy fish.

Queensland Museum collection



# CROCODILES



West African dwarf crocodile



Mugger crocodile



Siamese crocodile



New Guinea crocodile



Slender-snouted crocodile



Nile crocodile



American crocodile



Saltwater crocodile



Freshwater crocodile

# GHARIALS



False gharial



Gharial

# ALLIGATORS AND CAIMANS



Cuvier's dwarf caiman



Chinese alligator



Broad-snouted caiman



Black caiman



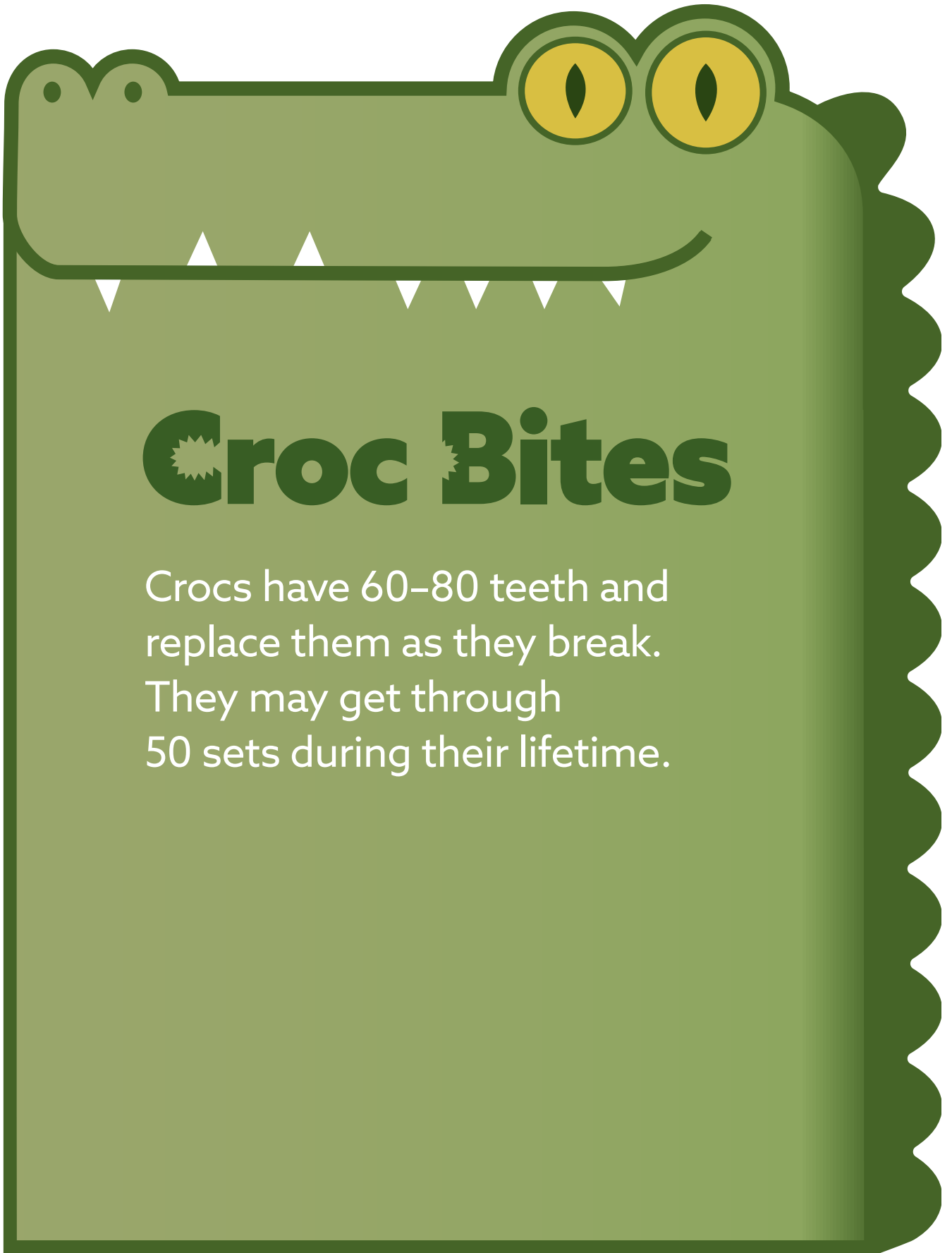
American alligator

# Hands on heads

**Feel the bumps and ridges on these skulls. Compare the two.**

Croc skulls change shape as they age, growing thicker to help deal with larger prey. The smaller skull is from a younger croc.

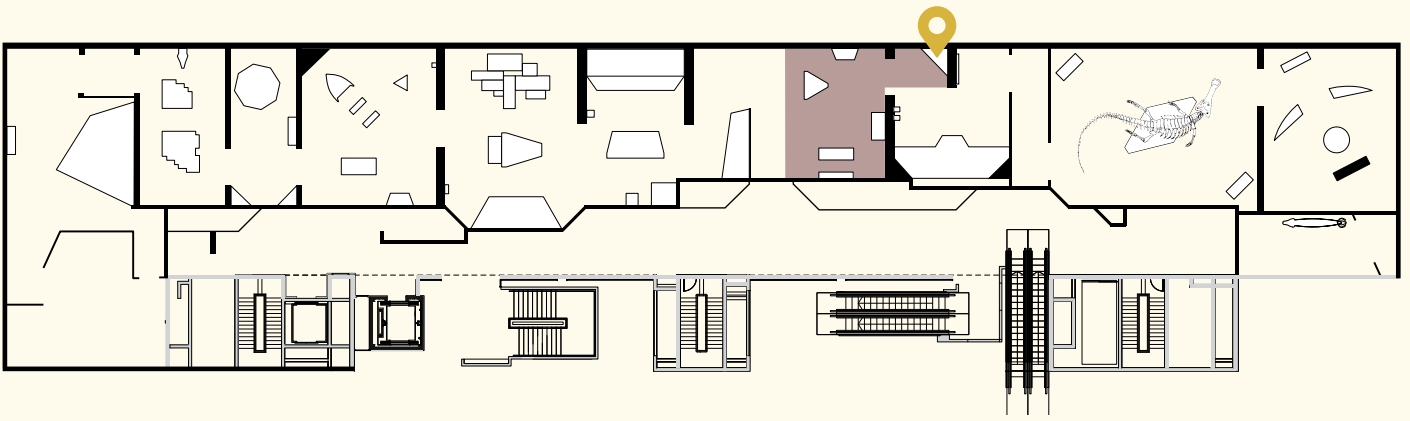




# Croc Bites

Crocs have 60–80 teeth and replace them as they break. They may get through 50 sets during their lifetime.

# GLOBAL CONNECTIONS



# SEPIK SKULLS

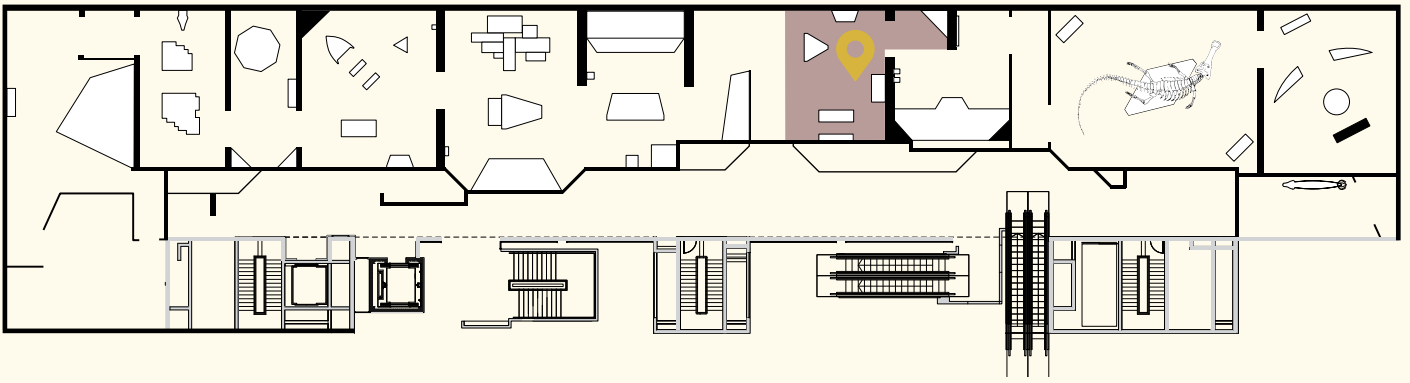
It's not only scientists who collect crocodile skulls.

These three are from East Sepik, Papua New Guinea.

They've been decorated with clay and cowrie shells and are over 30 years old.

In Sepik culture, crocodiles are symbols of strength and power. In their creation story, the Sepik people are descended from the crocodile.

Queensland Museum collection



# GLOBAL CONNECTIONS

Everywhere that people live alongside crocodiles, there are deep connections. Across the world, crocs are a part of our culture and beliefs.

They are worshipped as gods, taken as totems or seen as family.

These connections are shown in artworks and amulets, costumes and currency.

# CROCODILE GOD

This is Sobek, the ancient Egyptian god of crocodiles, the Nile, the army and fertility.

He was described as aggressive and violent, like the Nile crocodiles.

Sobek is first mentioned in 4,000-year-old pyramid inscriptions, and was worshipped for around 2,500 years – right up to Roman times.

The Egyptians mummified crocodiles and buried them in their tombs so Sobek would protect their loved ones in the afterlife.

Despite Sobek's links to fertility, ancient Egyptians used crocodile dung as a contraceptive. Since it forms a blockage and its acidity kills sperm, it probably worked!

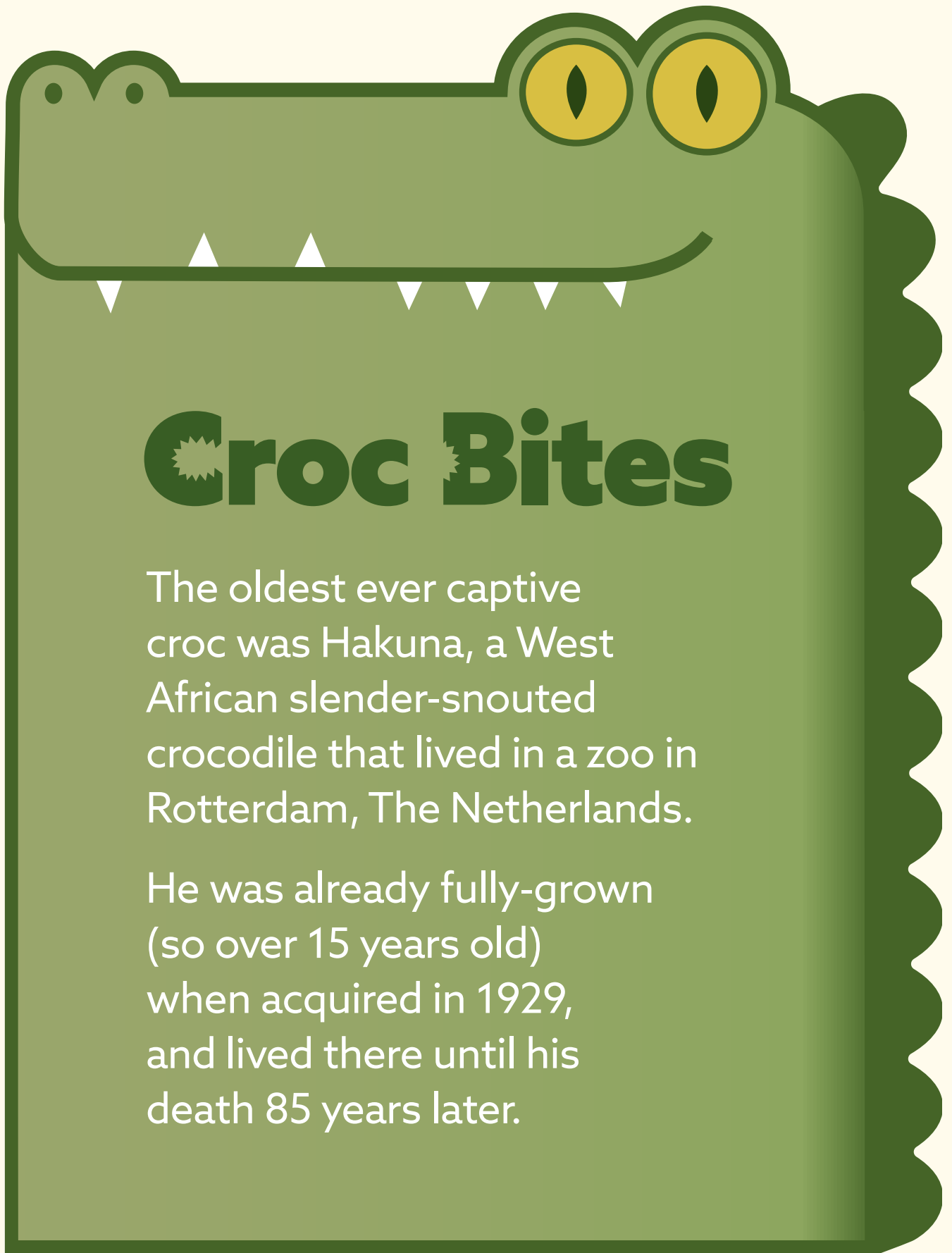


## Mummy mystery

This crocodile mummy is at the Rijksmuseum van Oudheden in Leiden, The Netherlands.

Egyptologists there used a CT scanner to look inside the 3-metre-long croc and were amazed what they found.

**Touch the screen to unwrap the mummy. What's inside?**



## **Croc Bites**

The oldest ever captive croc was Hakuna, a West African slender-snouted crocodile that lived in a zoo in Rotterdam, The Netherlands.

He was already fully-grown (so over 15 years old) when acquired in 1929, and lived there until his death 85 years later.

# Croc spotter



## **Can you see shells?**

Look for these two cleverly carved crocs from Papua New Guinea. They have very cool teeth.

## **Which are your favourite bits?**

Their eyes are made from snail doors – round bits of shell that sea snails use to block their shell openings and keep themselves safe. They're called operculum (oh-per-kew-lum).

Queensland Museum collection

# PRACTICAL AND PAINFUL

These crocodile-themed household items are all from Papua New Guinea (PNG).

They show the close cultural connections to crocodiles in PNG communities and their presence in everyday life.

In the Sepik region, some young men even undergo an initiation ceremony that celebrates the return of the ancestral crocodile. The skin on their chest, backs and buttocks is cut to test their strength and self-discipline.



Scars on the back of a Chambri man from Kanganaman Village represent the teeth marks of the crocodile, showing he's been reborn as a crocodile-man.



## Comb with crocodile handle, worn by men

From Suki Lagoon, Lower Fly River, Western Province.

Queensland Museum collection



## Two-headed bowl

**Why do you think he has a bird on his head?**

Museum and Art Gallery of the Northern Territory collection



## **Comb with crocodile handle, worn by men**

From Suki Lagoon, Lower Fly River, Western Province.

Queensland Museum collection



## **Wooden headrest**

From Yentchan Village, Sepik River.

**Could you sleep on a headrest instead of a pillow?**

Queensland Museum collection



## Obsidian spear head with carved crocodile head

From Manus Island.

Queensland Museum collection



## Coins dated 2004 (larger) and 2005

Both one Kina value.

Queensland Museum collection





## Lime spatula

From Bipi Island. Used to scoop powdered lime out of a pot to chew with betel nut.

Queensland Museum collection



## Mamwala yam house ornaments

From Milne Bay or Gawa Island. To protect stored yams - a sign of wealth.

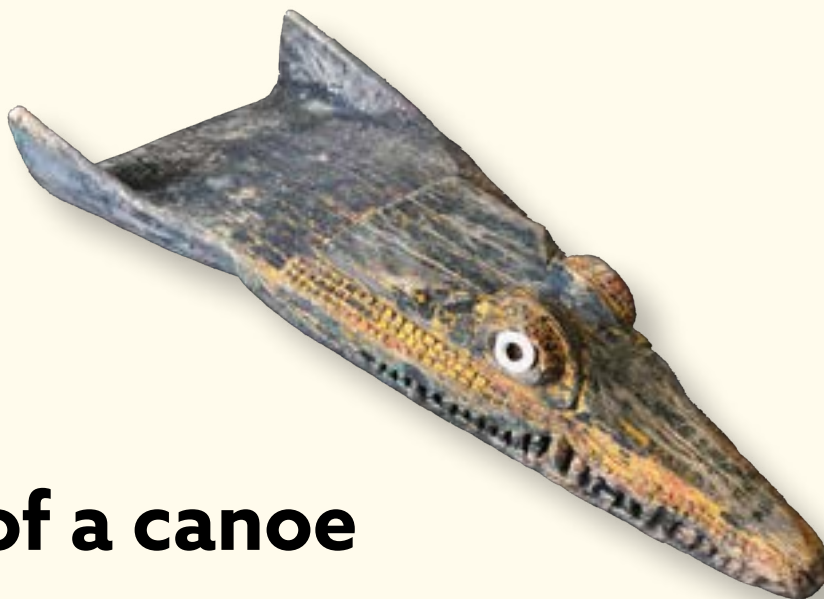
Queensland Museum collection



## **Crocodile tooth necklace**

From Fly River, Western Province.

Queensland Museum collection



## **Front of a canoe**

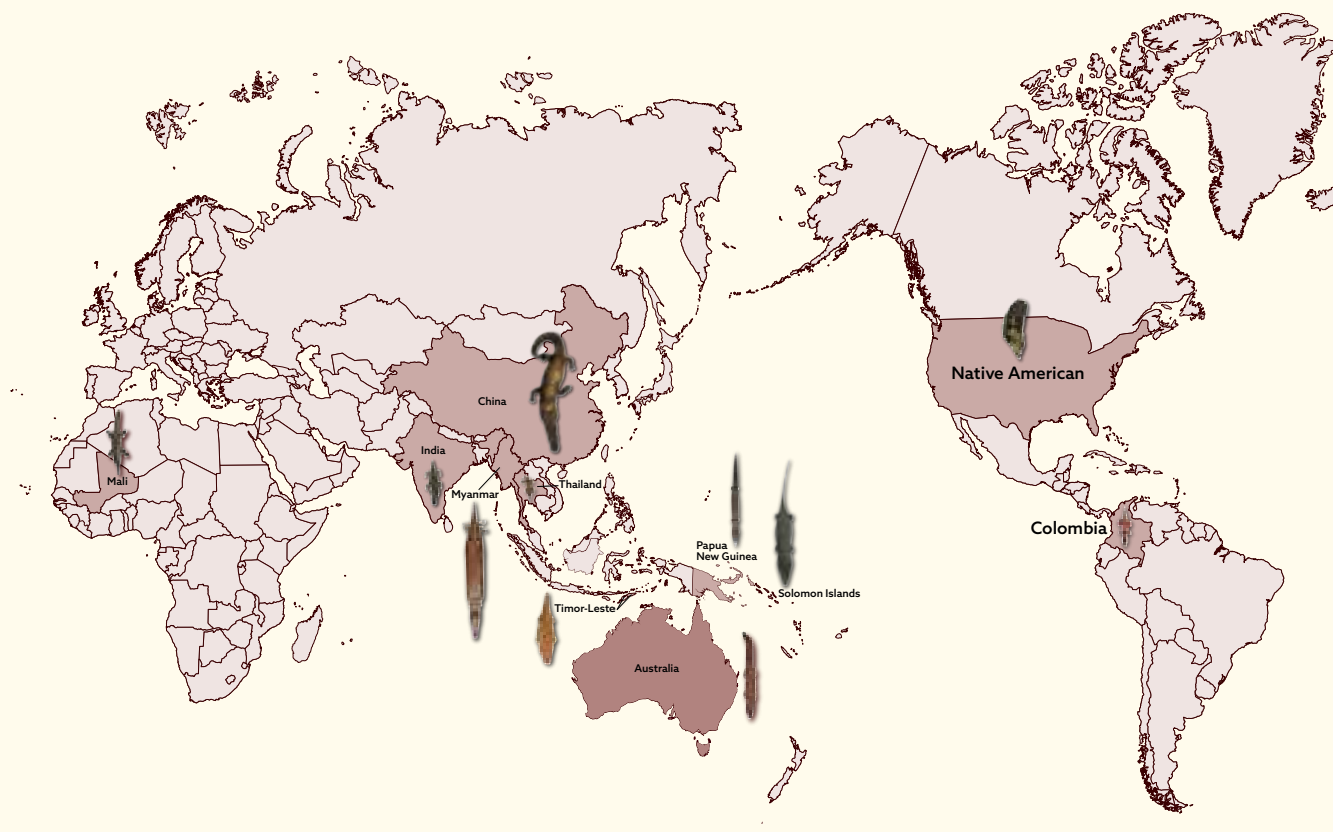
From Yimas Village, Arafundi River.

On loan from Geoff and Penny Barnes

# CROC CULTURES

Cultural connections to crocs are often represented by beautiful objects.

Here are just a few from across the world.





## Colombia

Caiman carved by Alirio Liberato.

In Colombian folklore, *Lanawaru* ('grandfather caiman') was a man who came to Earth from a planet of clouds and became the creature that today rules over the water and the fish.

He's seen as sacred to the Borikada community and master of the other animals.



## India

Dhokra brass couple riding a crocodile.

In Hindu mythology, the river goddess Ganga rides on a part-crocodile beast called *makara*. This became *magar*, the Hindi word for 'crocodile'.

Dhokra art uses a 'lost wax' technique that is 4,000 years old. Artists sculpt in wax, form a mould by covering it with clay, then insert metal fragments. When the mould is fired, the wax melts away and is replaced by the metal.



## Australia

Milkwood crocodile coloured with red oxide, carved by Angus Namponan, Wik-Ngatharr language group, 1976, Aurukun, Queensland.

Both saltwater (Pikkuw) and freshwater (Kenh) crocodiles are highly respected in Wik culture, and ceremonies use large versions of these traditional sculpted animals.

The saltwater croc is feared as a dangerous man-eater with irresistible powers over women.

Queensland Museum collection



## Timor-Leste (East Timor)

Earthenware crocodile figurine made by Caterina and Sebastiania Soares, 2007, Ailili village, Manatuto.

East Timorese call crocodiles *avô*, the Tetum word for 'grandfather', which stems from a creation story where a boy helped a dying crocodile. In gratitude, the crocodile promised not to harm him and, when it grew old, transformed into the island of Timor, to create a home for the boy and his descendants.

Museum and Art Gallery of the Northern Territory collection



## Myanmar (Burma)

*Mi-gyaung* ('crocodile zither'), a stringed musical instrument made by the Mon people of Myanmar.

Three strings would have run along its back to the tuning pegs at the tail.

These crocodile-themed instruments first appeared at least 1,200 years ago. According to legend, King Okkalapa ordered one to be made in memory of his son, Prince Nandar, who died while trying to cross a river on the back of a crocodile to reach the girl he loved.

Queensland Museum collection



## China

Bronze and gilt feng shui crocodile.

In feng shui, every animal has a symbolic meaning and purpose.

Crocodiles are revered for their ability to survive and thrive in diverse environments; they symbolise resilience and tenacity.

Crocodiles also embody feng shui principles associated with water, including the flow of wealth and opportunities.



## Solomon Islands

Painted crocodile toy, with shell teeth and eyes. Made for Helen Hugo Barrett.

Many Solomon Islanders see crocodiles as their totem animal and ancestor. Though usually kind creatures that help their human relatives in times of need, these sacred crocodiles can also punish those who break taboos. So, if someone is attacked by a crocodile, it is assumed they did something wrong.

Queensland Museum collection



## Papua New Guinea (PNG)

In PNG, crocodiles symbolise strength, power and manhood. They are central to the beliefs and initiation rituals of many communities.

The Chambri people of East Sepik believe crocodiles are sacred and humans evolved from a crocodile ancestor.

This carving was collected in the late 1930s.

Queensland Museum collection



Native American, USA

Serpentine stone alligator fetish with turquoise eyes, carved by Calvin Weeka Sr.

Carved fetishes serve ceremonial purposes for the Native American Zuni community. Each animal is believed to have inherent powers that aid the fetish's owner.

Carvers use local stones, like turquoise, which the Zuni regard as sacred, and serpentinite.



## Mali, West Africa

Bronze crocodile from the Bambara tribe.

The Bambara create figurines like this one to help them remember useful proverbs, such as:

*No matter how long a log stays in the water, it doesn't become a crocodile.*

### **What do you think it means?**

Perhaps that the essential things about you won't change, no matter where you are.



## Thailand

Brass crocodile amulet.

This crocodile is posed with its mouth open to catch money.

In Thai lore, crocodiles are fast-moving and powerful.

The amulet is believed to help its owner seize opportunities and catch wealth and good fortune, while its hard protective skin deflects bad luck and misfortune.



## **Roman regalia**

Roman soldiers stationed in Egypt over 1,800 years ago made this armour from crocodile skin.

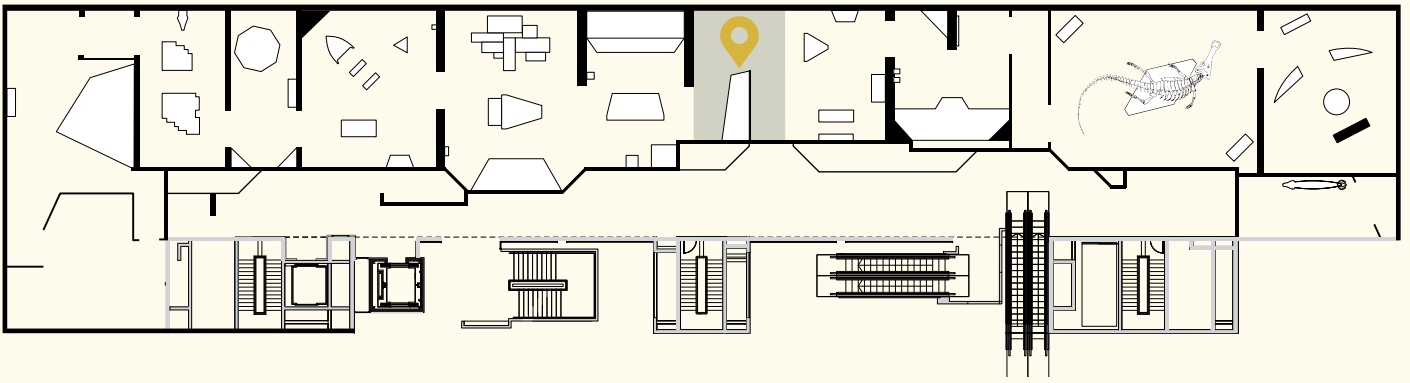
Unearthed in the 1840s in a grotto on the banks of the Nile, it was probably worn for ceremonies (rather than battle) by soldiers attracted to the local crocodile cult.

Displayed at the British Museum in London.

**Try on our replica armour.**

Credit: © The Trustees of the British Museum

# OLD AUSSIE CROCS



# OLD AUSSIE CROCS

Ancient Australia was home to a group of crocodiles called the mekosuchines (mee-co-sue-keens).

Though all related, they came in a variety of shapes and sizes and adapted to live in different habitats, not just in the water.

We know them from fossils found in Queensland, the Northern Territory and South Australia.

Mekosuchines lived in Australia from 55 million years ago until only 40,000 years ago. We don't know what drove them extinct, but it may have been the drying climate.

As the first people arrived here over 65,000 years ago, they probably met the mekos.

# TOOTH TEST

Most living crocs have pointy, cone-shaped teeth, good for snatching wriggling prey.

But teeth from some extinct crocs are flatter and serrated, like knife blades, perfect for slicing through prey.

Studying croc teeth reveals some ancient species had different diets to crocs today. A few were even herbivores – veggie crocs.

**Compare the teeth of the ancient croc and the current croc.**



How are they similar?



How are they different?



Which is more like the dinosaur tooth?



Ancient crocodile tooth – a real fossil tooth from a *Quinkana*.

Queensland Museum collection



Saltie tooth – a real tooth from a living *Crocodylus porosus*.

Donated by Crocosaurus Cove



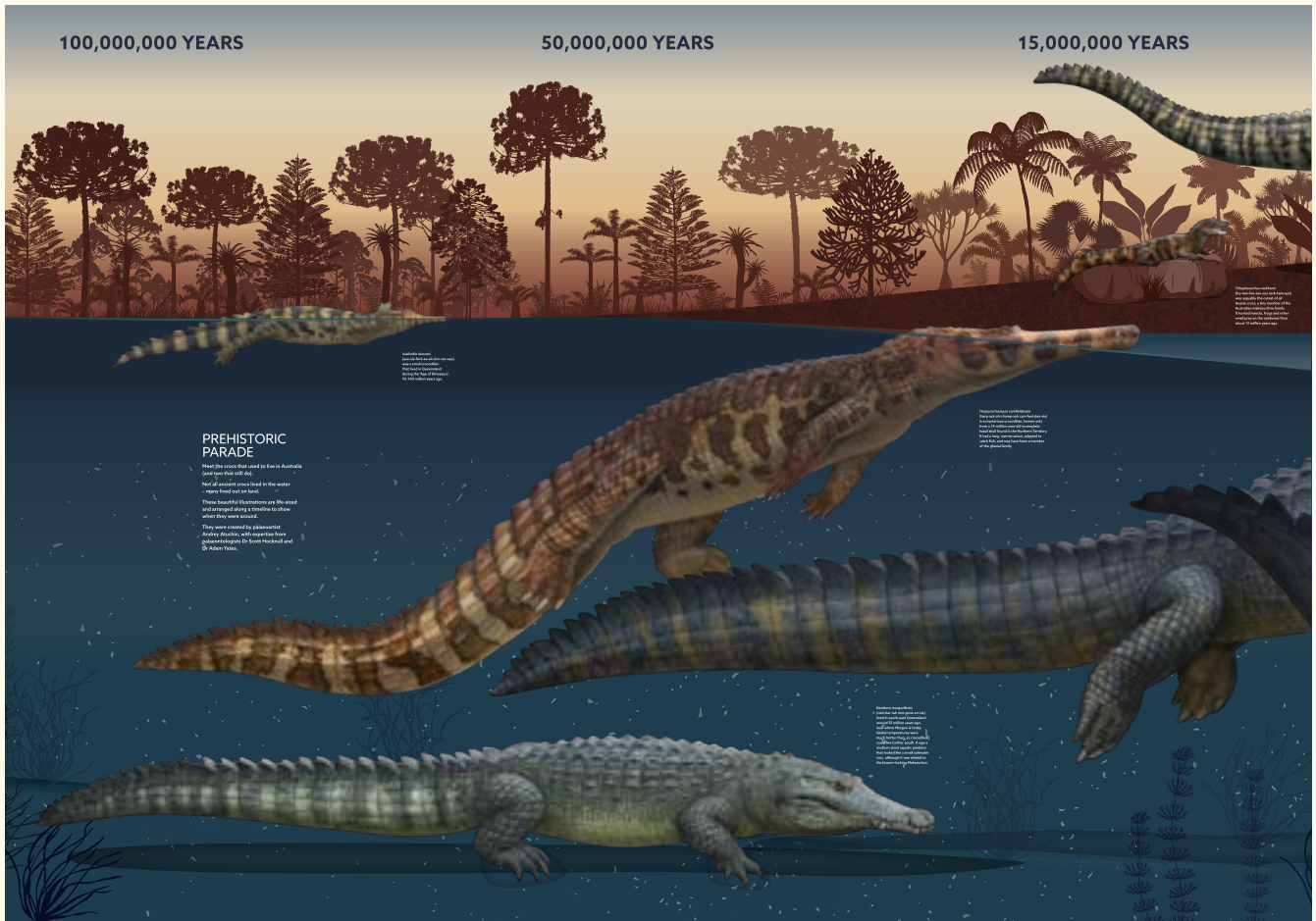
Dinosaur tooth – a replica tooth from a *Tyrannosaurus rex*.

# What's in a name?

These ancient crocs were named within a Western system. First Nations' naming systems, while sharing similarities, are deeply rooted in spiritual and cultural beliefs and often incorporate kinship systems and rituals.

*Aka the Pet Crocodile* showcases this process, describing how crocodile body parts were named in Kalaw Kawaw Ya, the language of Saibai Island.

This iteration representing the Saibai Koedal clan group was written by Jeffrey Aniba Waia and Jenson Waigana Warusam and compiled by Dr Andrew Belletty.



# PREHISTORIC PARADE

Meet the crocs that used to live in Australia (and two that still do).

Not all ancient crocs lived in the water – many lived out on land.

These beautiful illustrations are life-sized and arranged along a timeline to show when they were around.

They were created by palaeoartist Andrey Atuchin, with expertise from palaeontologists Dr Scott Hocknull and Dr Adam Yates.



*Isisfordia duncani* (eye-sis-ford-ee-ah dun-can-eye) was a small crocodylian that lived in Queensland during the 'Age of Dinosaurs', 92–100 million years ago.



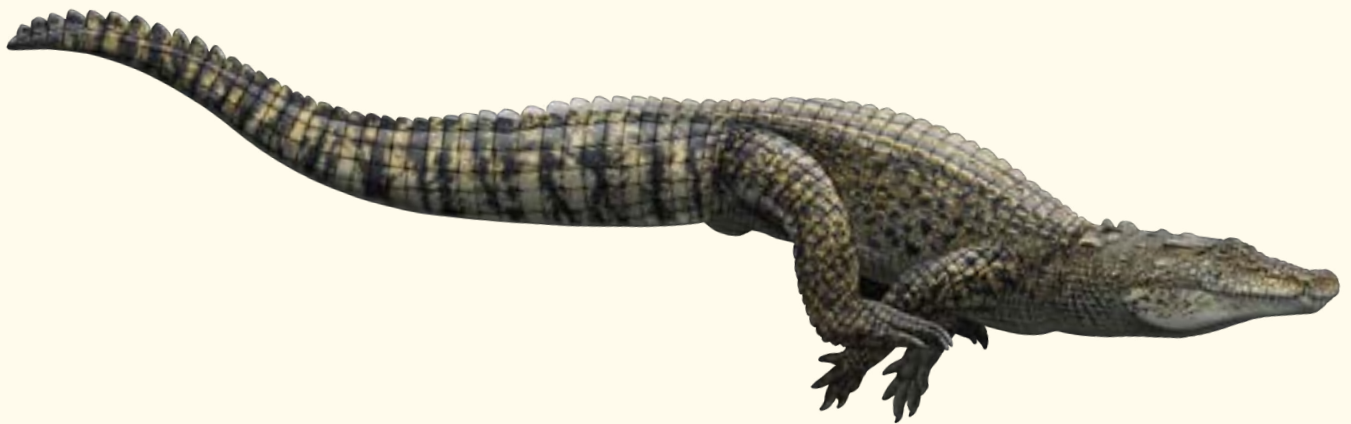
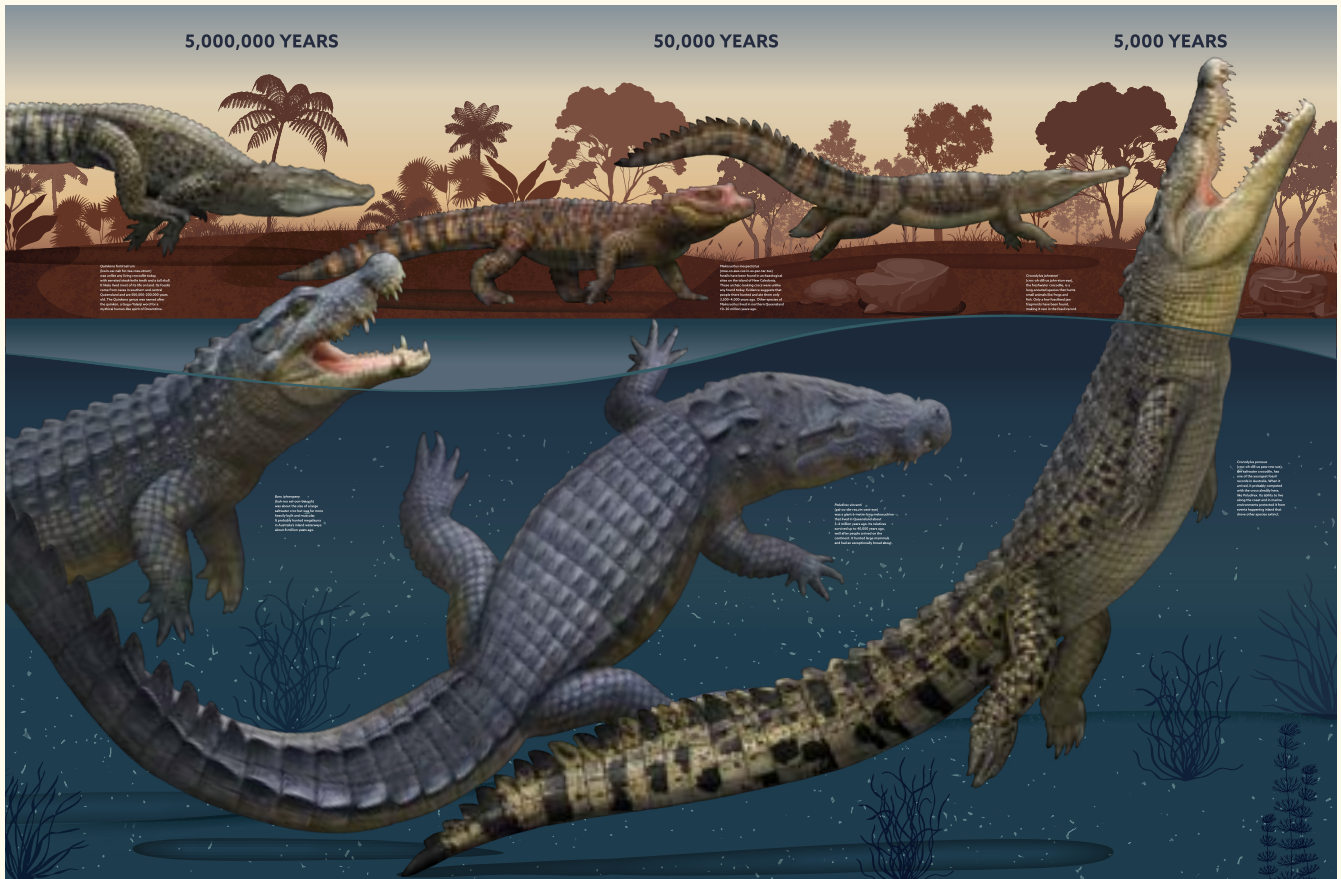
*Kambara murgonensis* (cam-bar-rah mer-gone-en-sis) lived in south-east Queensland around 55 million years ago, near where Murgon is today. Global temperatures were much hotter then, so crocodiles could live further south. It was a medium-sized aquatic predator that looked like a small saltwater croc, although it was related to the bizarre-looking *Mekosuchus*.



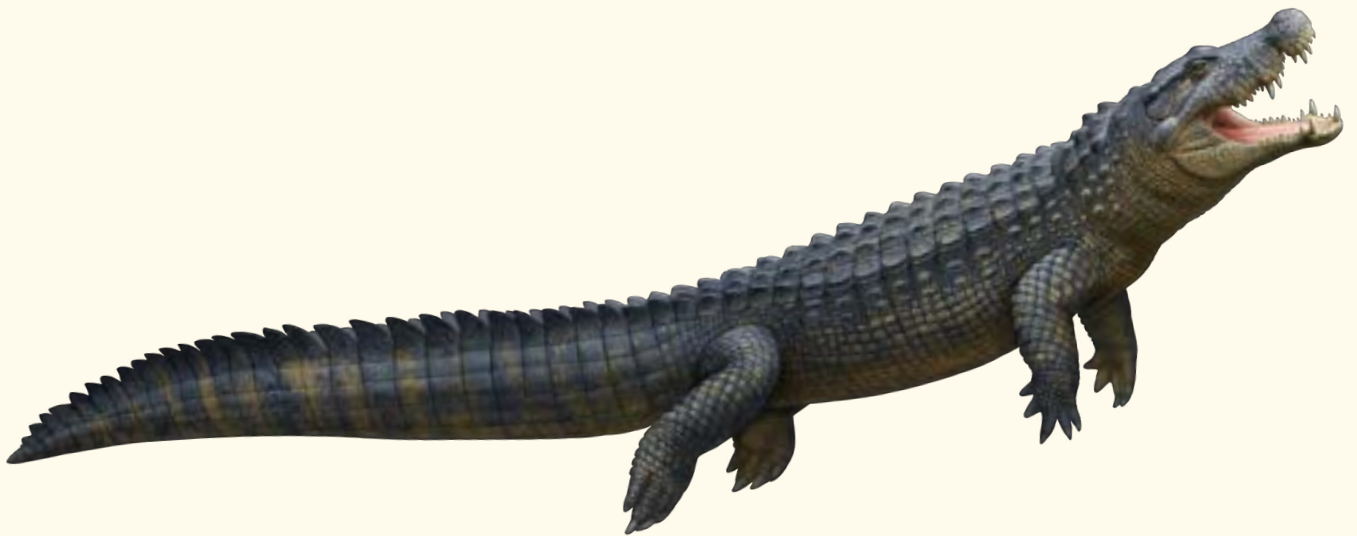
*Harpacochochampsia camfieldensis* (harp-ack-oh-champ-sah cam-feel-den-sis) is a mysterious crocodilian, known only from a 14-million-year-old incomplete fossil skull found in the Northern Territory. It had a long, narrow snout, adapted to catch fish, and may have been a member of the gharial family.



*Trilophosuchus rackhami* (try-low-foe-sue-cus rack-ham-eye) was arguably the cutest of all Aussie crocs, a tiny member of the Australian mekosuchine family. It hunted insects, frogs and other small prey on the rainforest floor about 13 million years ago.



*Quinkana fortirostrum* (kwin-car-nah for-tee-ross-strum) was unlike any living crocodile today, with serrated steak-knife teeth and a tall skull. It likely lived most of its life on land. Its fossils come from caves in southern and central Queensland and are 500,000–200,000 years old. The *Quinkana* genus was named after the *quinkan*, a Gugu-Yalanji word for a mythical human-like spirit of Dreamtime.



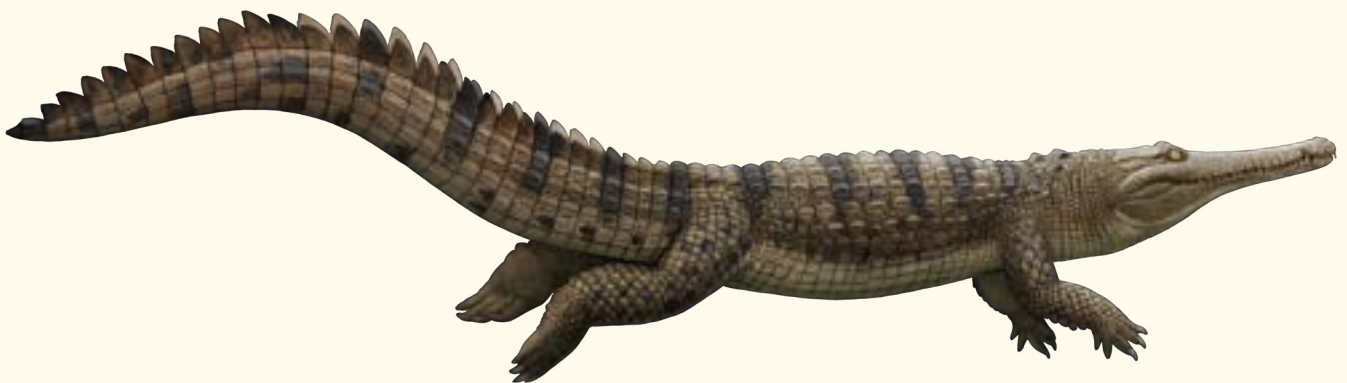
*Baru iylwenpeny* (bah-roo eel-oon-bin-yah) was about the size of a large saltwater croc but was far more heavily built and muscular. It probably hunted megafauna in Australia's inland waterways about 8 million years ago.



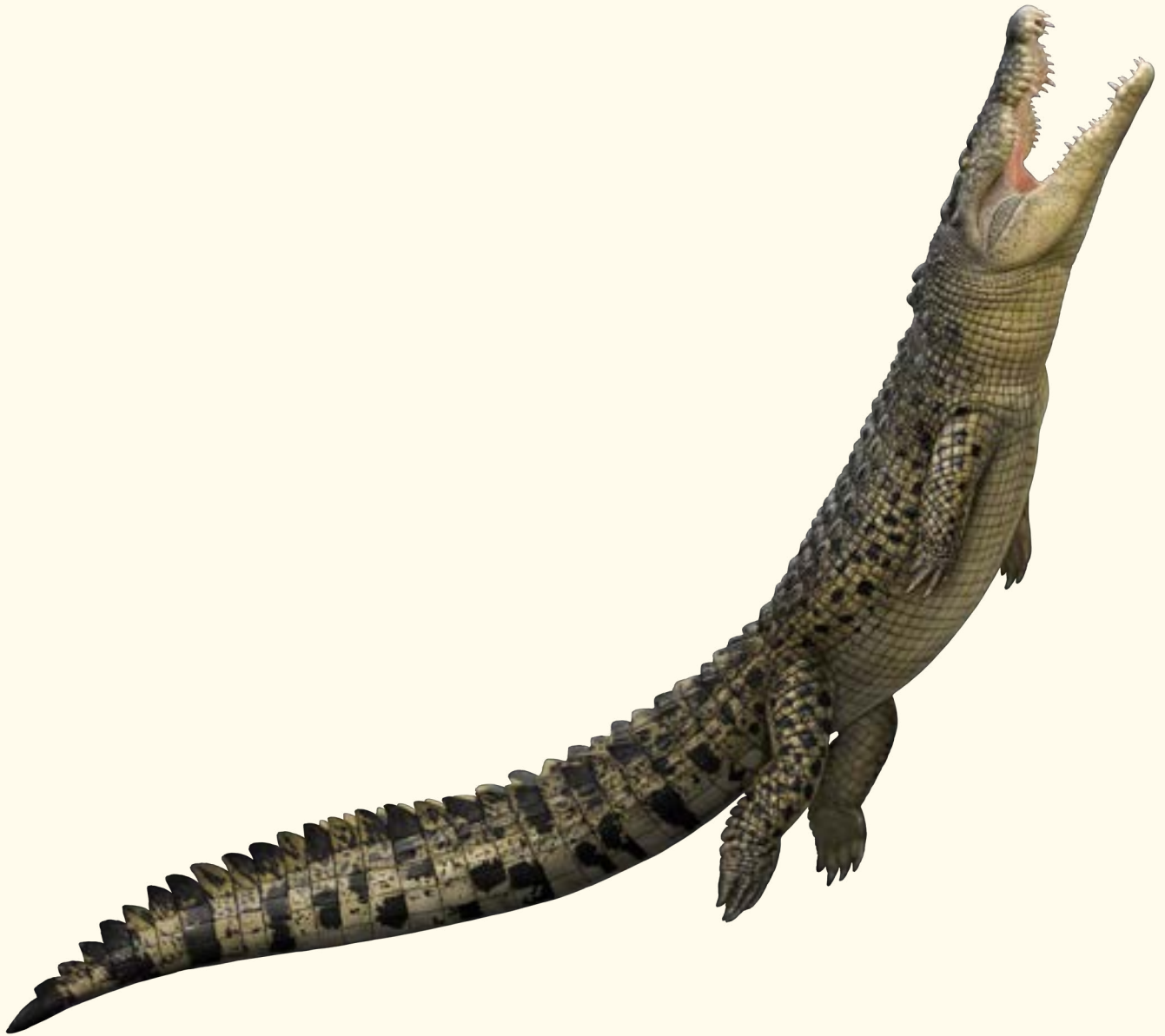
*Mekosuchus inexpectatus* (mee-co-sue-cus in-ex-pec-tar-tus) fossils have been found in archaeological sites on the island of New Caledonia. These archaic-looking crocs were unlike any found today. Evidence suggests that people there hunted and ate them only 3,500–4,000 years ago. Other species of *Mekosuchus* lived in northern Queensland 10–20 million years ago.



*Paludirex vincenti* (pal-oo-die-rex vin-cent-eye) was a giant 6-metre-long mekosuchine that lived in Queensland about 3–4 million years ago. Its relatives survived up to 40,000 years ago, well after people arrived on the continent. It hunted large mammals and had an exceptionally broad snout.



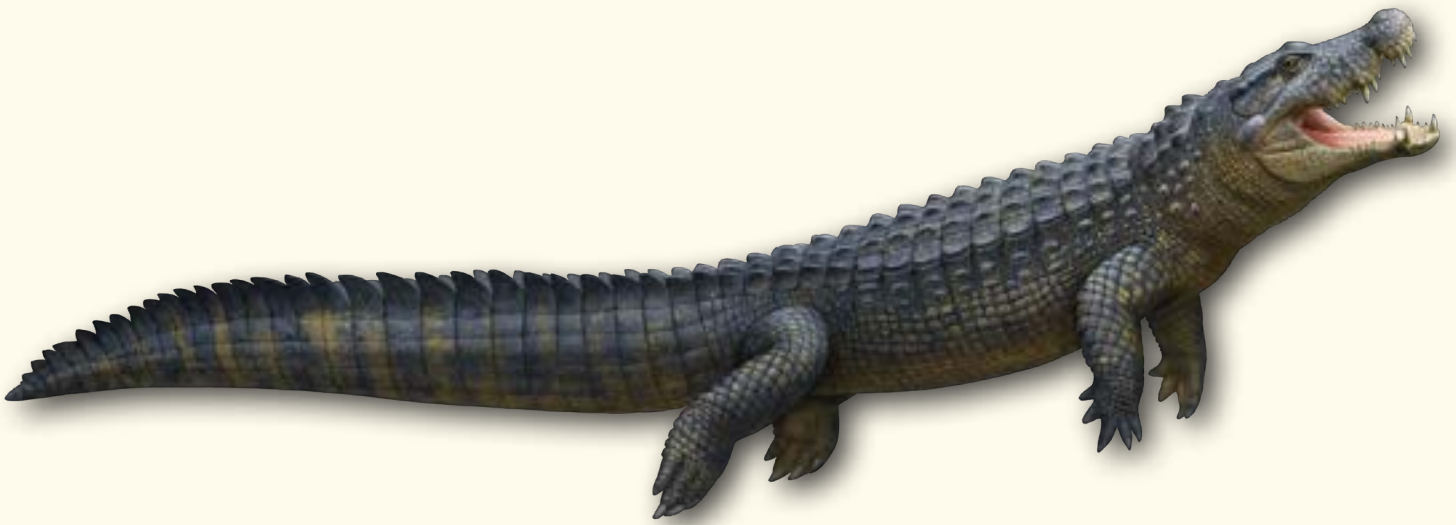
*Crocodylus johnstoni* (croc-oh-dill-us john-ston-eye), the freshwater crocodile, is a long-snouted species that hunts small animals like frogs and fish. Only a few fossilised jaw fragments have been found, making it rare in the fossil record.



*Crocodylus porosus* (croc-oh-dill-us paw-row-sus), the saltwater crocodile, has one of the youngest fossil records in Australia. When it arrived, it probably competed with the crocs already here, like *Paludirex*. Its ability to live along the coast and in marine environments protected it from events happening inland that drove other species extinct.

# DIVINE CROC

Meet *Baru iylwenpeny* (bah-roo eel-oon-bin-yah).



His name means 'divine crocodile who is good at hunting' in the Yolŋu Matha and Anmatyerr languages.

He lived in Australia about 8 million years ago.

*Baru* grew to about 4–5 metres long, like today's saltwater crocs, but had a shorter, deeper snout and very large teeth – perfect for crunching megafauna, and leading to the nickname 'cleaver-headed croc'.

This is a 3D-printed replica of a skeleton assembled from bones found at Alcoota Scientific Reserve, about 120 km north-east of Alice Springs.

*Baru iylwenpeny* was named by Dr Adam Yates of the Museum and Art Gallery of the Northern Territory (MAGNT).



Above: Dr Adam Yates of MAGNT holding the most complete fossil skull of *Baru iylwenpeny*

# Skin bones

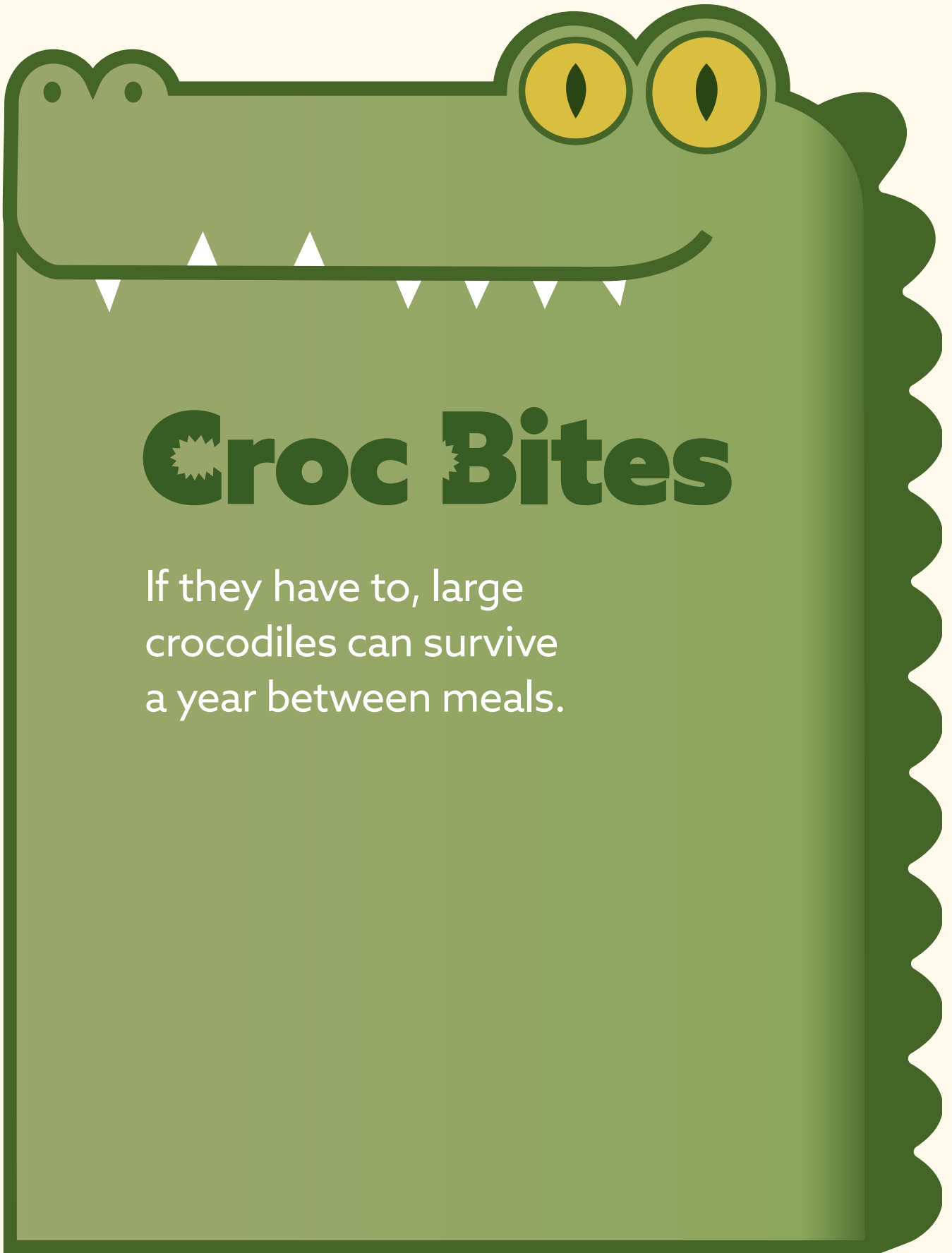
These bony plates are real fossils from *Baru iylwenpeny* (bah-roo eel-oon-bin-yah). They are about 8 million years old.

Called osteoderms (oss-tee-oh-derms), they formed the croc's bumpy armour.

*Baru* would have had about 650 of them – he was well-protected. The large one formed part of a solid shield to cover his neck, while the others were tile-like plates over his back.

They were found in the late 1990s to early 2000s on the Alcoota Scientific Reserve in central Australia.

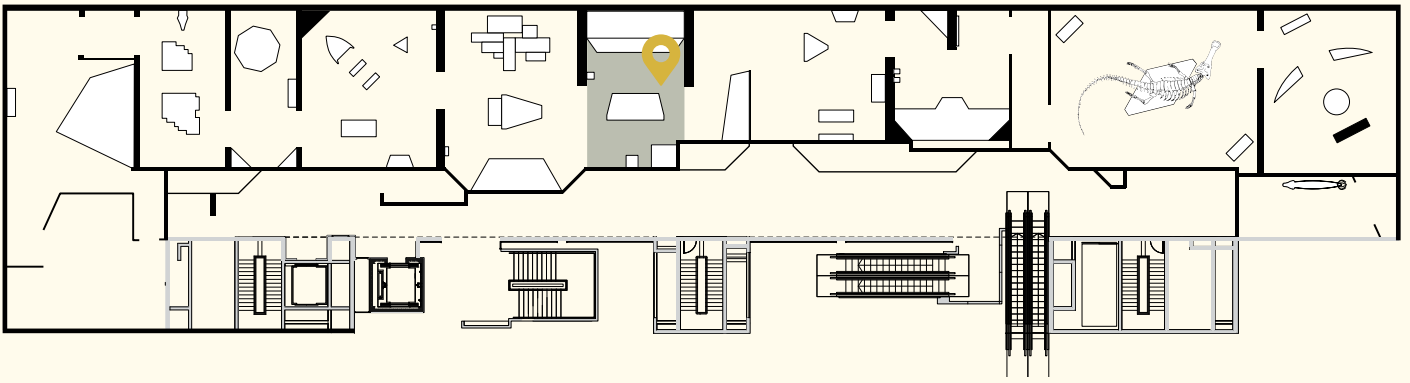
Museum and Art Gallery of the Northern Territory collection



# Croc Bites

If they have to, large crocodiles can survive a year between meals.

# OUR TWO

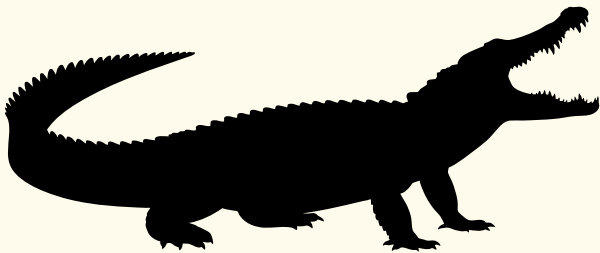


# OUR TWO

Today Australia is home to only two species of crocodiles:



Freshwater crocodiles  
*Crocodylus johnstoni*  
(croc-oh-dill-us john-ston-eye)  
- 'freshies'



Saltwater crocodiles  
*Crocodylus porosus*  
(croc-oh-dill-us paw-row-sus)  
- 'salties'

Saltwater crocodiles are the biggest reptiles on Earth. Despite their name, they can also live in fresh water.

Freshies are only found in Australia, while salties are more widespread across the Indo-Pacific.

Both are excellent predators, perfectly adapted to their environment.

They are not descended from Australia's prehistoric mekosuchine crocs. Fossils suggest saltwater crocs arrived here from Asia about 4 million years ago.

# UNDER A NEST!

Saltwater crocodile hatchlings are emerging from their eggs. **Can you hear them call for their mother?**

Female salties build their nests in the wet season (November–April), constructing a mound of earth and vegetation. They lay up to 50 eggs, which take about three months to hatch.

Freshwater crocodiles dig holes in sand or soil and lay around 15 eggs.

Crocodile mothers are very protective. They defend their nests, help their babies hatch and even carry them to the water in their mouths. Once there, the hatchlings stick together in a crèche, watched over by Mum.

The model took Ewin Wood and his team about 230 hours to create. The eggs are real; empty ones donated by Australia Zoo.

# ***Egg-samples (get it?)***

**Compare these eggs from saltwater (left) and freshwater (right) crocodiles.**

Although the adults grow to very different sizes, their eggs are pretty similar.

Baby salties are about 30 cm long when they hatch, while baby freshies are about 24 cm.

The gender of the babies isn't set when the eggs are laid – it depends on the temperature of the nest.

At 31–33°C, most hatchlings will be male. But if it's any cooler or hotter, they'll be female.

Queensland Museum collection

**Feel these saltie eggs.**

Donated by Australia Zoo

# Croc spotter



## Can you spot a gaping croc?

Crocs often lie with their mouths open – it's called gaping. Dr Cormac Price found two reasons why:

**Cooling:** opening their mouths helps them lose heat.

**Showing off:** bigger crocs signal their size by gaping wider and longer, and do it more around other crocs.

Model croc head from Museum and Art Gallery of the Northern Territory collection

# CLEVER CROCS

How croc clever are you? How clever are crocs?

**Are these true or false?**

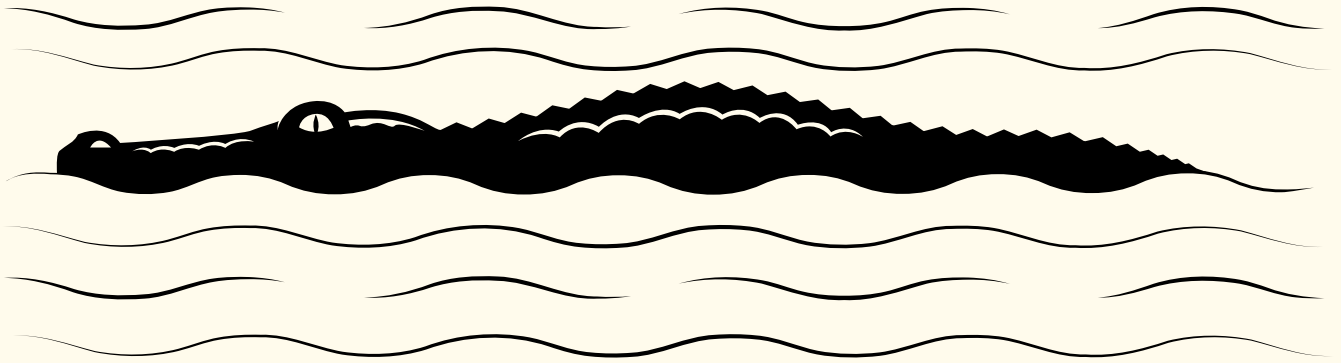
**Crocs make water ripples to communicate.**



**True**

**Crocs make very low frequency sounds  
(too low for us to hear)  
that vibrate the water.**

**Crocs make water ripples to communicate.**



**True**

**Trackers show that crocs use ocean currents to speed up their journeys.**

**Crocs hide their nests from predators.**



**False**

**They don't hide them, but they do defend them.**

**Crocs sing to their mates.**



**False**

**Male crocs bellow to attract mates, but they don't sing.**

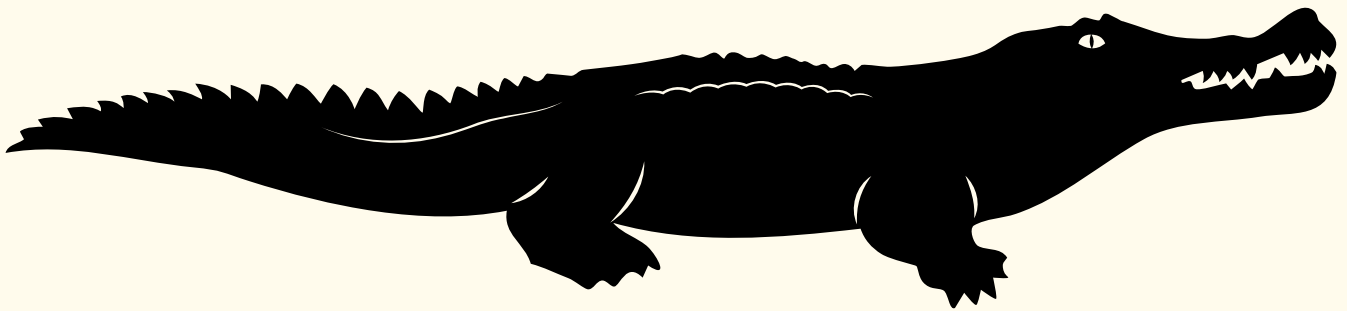
**Crocs team up to hunt.**



**True**

**Some crocs work together to herd fish or ambush prey.**

**Crocs can sense the weather.**



**True**

**They sense the low pressure at the  
start of the wet season  
and look for mates.**

**Crocs like playing.**



**True**

**They will slide down banks over and over again for fun.**

**Crocs have names they call each other.**



**False**

**(Well not that we know of!)**

**Crocs use tools.**



**True**

**In nesting season they balance sticks on their snouts to attract birds.**

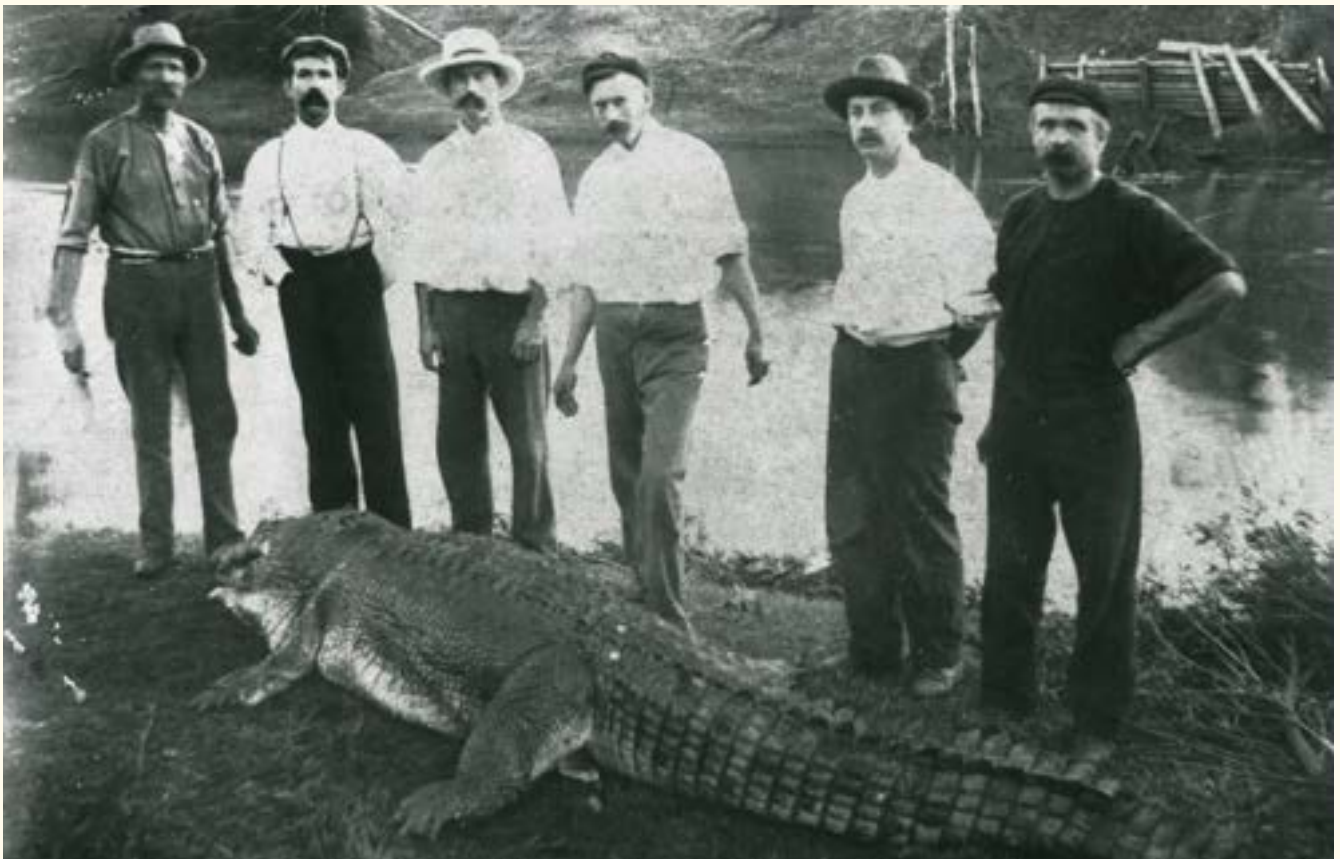
# BRISBANE CROC!

This tooth is from a croc caught in the Logan River, south of Brisbane, in 1905.

## Why was a croc that far south?

Rumour was, some Brisbane residents had been given a croc for Christmas, but it escaped or was released into the river. However, since the croc caught was much bigger, it was most likely a wandering wild one.

As global temperatures rise, future crocs might head towards Brisbane to escape the heat. We'd better keep tracking them.



Crocodile shot in the Logan River near Logan Village, Queensland, 1905. Credit: AG Hinds

Photo: State Library of Queensland collection.

Tooth: Queensland Museum collection

# LOCATION, LOCATION ...

Hunting, habitat loss and legal protections have all impacted croc populations. Now, increasing temperatures are affecting them.

Using high-tech trackers, Prof. Craig Franklin (University of Queensland, supported by Australia Zoo) found croc temperatures are increasing and it's changing their behaviour.

Hotter crocs don't dive for as long: bad news for ambush hunters that must wait underwater for their prey. Also, crocs busy keeping cool have less time for other activities, like reproducing, and hotter nests make fewer males.

**See how croc spots have changed.**



**Range of saltwater crocs 500 years ago.**

- Breeding population
- Uncertain / not breeding
- Extinct

Data from Brandon Sideleau



**Range of saltwater crocs just prior to protection in Australia (1970).**

- Breeding population
- Uncertain / not breeding
- Extinct

Data from Brandon Sideleau



### Range of saltwater crocs today.

- Breeding population
- Uncertain / not breeding
- Extinct

Data from Brandon Sideleau



**Predicted range of saltwater crocs (2050).**

- Breeding population
- Uncertain / not breeding
- Extinct

Data from Brandon Sideleau

# Satellite transmitters

The technology in croc trackers keeps advancing.

They're increasingly more accurate, can detect more data types (e.g. body temperatures) and last longer.

Sirtrack transmitter: sends data every four days and is accurate to less than 1 km.

CATS transmitter: sends data every four hours and is accurate to a few metres (linked to GPS). Custom built for crocs, it can be reprogrammed while still on the croc to control the data transmitted. Uses a solar panel to recharge battery.

Trackers on loan from Prof. Craig Franklin

# BONY BUMPS

Osteoderm (oss-tee-oh-derm) means 'bone in the skin', and that's what they are!

These bony plates sit inside a croc's scales, giving them their bumpy-looking skin. They're important for:



**protection** – useful armour when fighting other crocs.



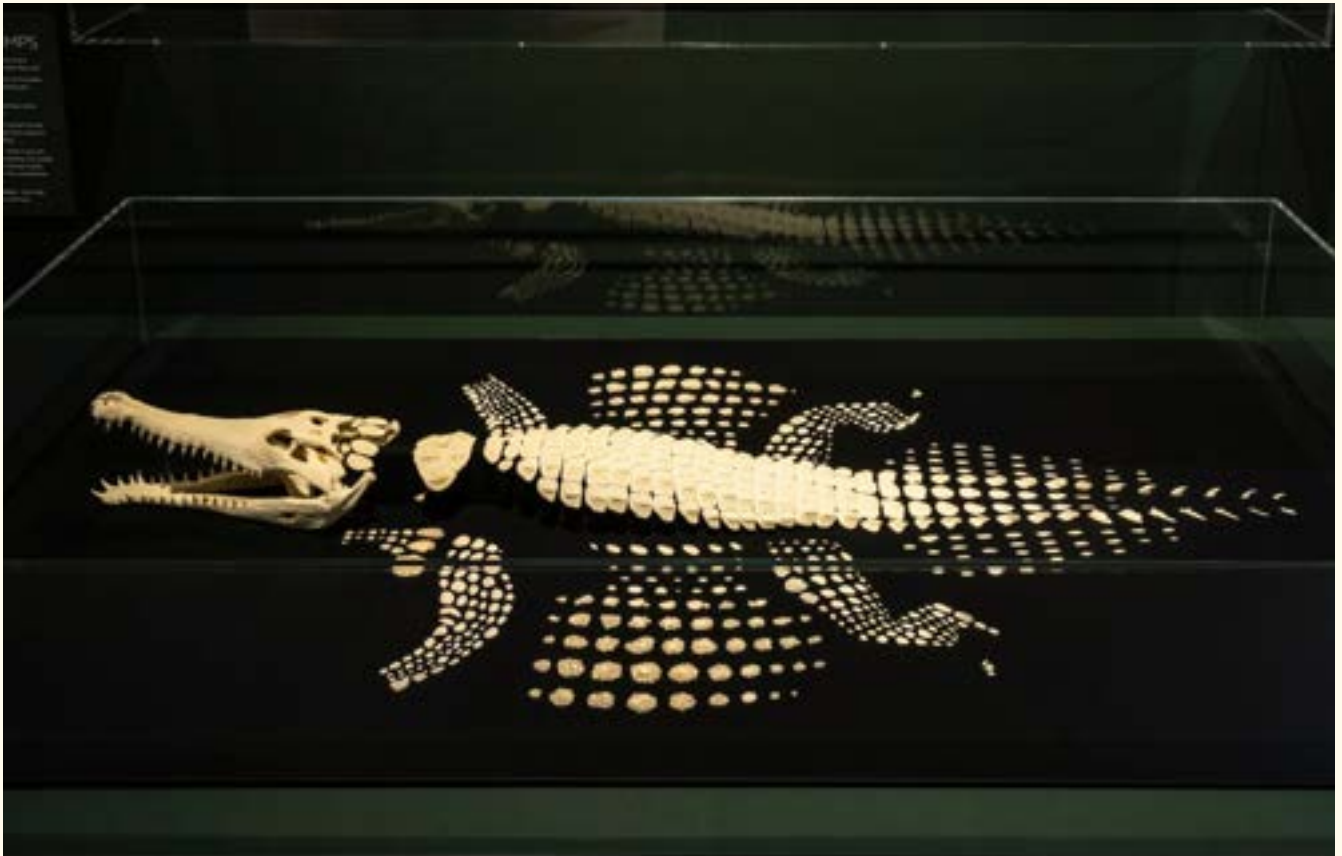
**locomotion** – some connect to the spine to form a brace that supports the croc while walking.



**blood chemistry** – when crocs are underwater not breathing, CO<sub>2</sub> builds up in their blood, making it acidic. Alkaline ions from the osteoderms balance this out.



**temperature control** – they help crocs absorb or shed heat.



Osteoderms and skull of a 2.8-metre male freshwater crocodile.

**Look carefully at the osteoderms from its belly.**

Instead of being single plates of bone, they're made from lots of small spiny bones that interlock.

Museum and Art Gallery of the Northern Territory collection

**Touch the osteoderms.**

**Imagine having armour-plated skin.**

Donated by Crocosaurus Cove

Osteoderms and skull of a 2.6-metre saltwater crocodile.

**Compare the number of osteoderms on this saltie to the freshie.**

Saltwater crocs have fewer osteoderms and none in their belly scales. This makes them more popular with the leather industry.

Queensland Museum collection



## Croc Bites

Crocodiles have only four toes on each back foot, but five on each of their front feet.



# Croc spotter

**Can you catch the  
colourful croc?**

**Have you ever seen a red  
crocodile? See if you can find one.**

There are no red crocs in the wild,  
but scientists found some orange  
ones in a cave in Gabon, Africa.  
They had been bleached by the  
bat poo in the water.

Museum and Art Gallery of the Northern Territory collection



Sweetheart and some young admirers, 19 July 1979.

Credit: Peter Bennett, courtesy of the NT News

# Saltwater crocodile

Made by Craig Koomeeta, 2001, Aurukun, Wik-Mungkam, Wik-Ngatharr and Wik-Elkan

This is a carving of a male saltie who ran off with a female freshie from Kencherang Lagoon. This angered a male freshie, who attacked the saltie and they both bled.

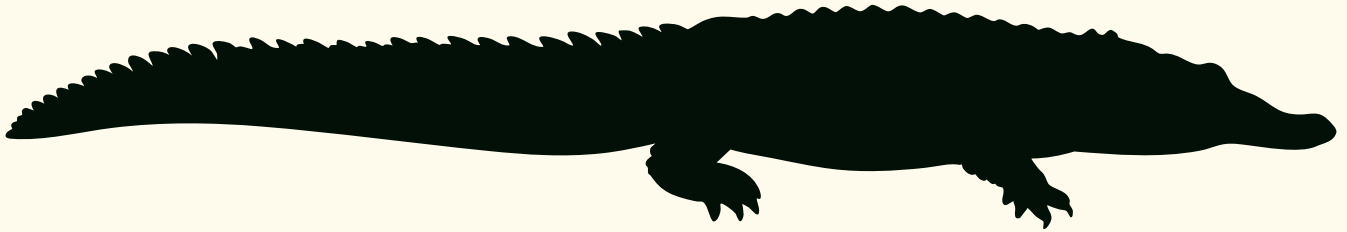
The saltie bit the freshie on the tail, making his short tail, and the freshie bit the saltie on the snout, making his short snout. Saltwater family heard him cry and took him back to the beach.

Story courtesy of Craig Koomeeta and Clifford and Roland Toikalkin, 2001.

Museum and Art Gallery of the Northern Territory collection

# Sweetheart

Meet Sweetheart, saltwater croc and Northern Territory icon, named after his home billabong – Sweets Lookout.



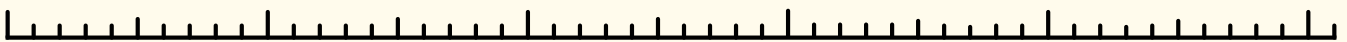
**Length: 5.1 m**

Sweetheart would bump boats and attack their motors. In 1979 he accidentally drowned while being captured for relocation. Taxidermists at the museum in Darwin preserved his body for display and made this fibreglass model.

Museum and Art Gallery of the Northern Territory collection

# Model freshie

This model was made from casting a real freshwater crocodile. The replica is then painted to match the original.



**Length: 1.6 m**

Casting involves creating a plaster mould from something (in this case a dead crocodile) and then pouring latex into the mould to create a replica.

**Compare it to the saltie model.**

**How are they similar?**

**How are they different?**

Queensland Museum collection

# Crocodile rocks

All these came from croc stomachs!

The fuzzy-looking ones are hairballs. Like cats, crocs cough up balls of indigestible bits, especially fur. **Can you spot the echidna spines?**

The large smooth one is a bezoar, a hairball that spent longer in the stomach. People believed bezoars could fight any poison (they don't).

The small stones are gastroliths. There are three theories about them: crocs swallow them to grind up food, use the extra weight to sink more easily, or they're just eaten accidentally.

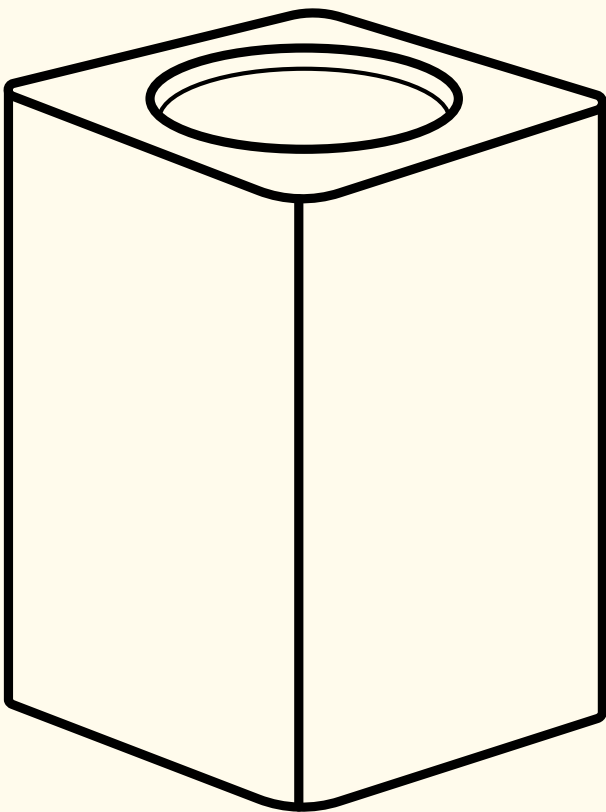
1. On loan from the Queensland Government
2. Queensland Museum collection, donated by Steve Irwin
- 3-4. Queensland Museum collection

# Flour drum or toy drum?

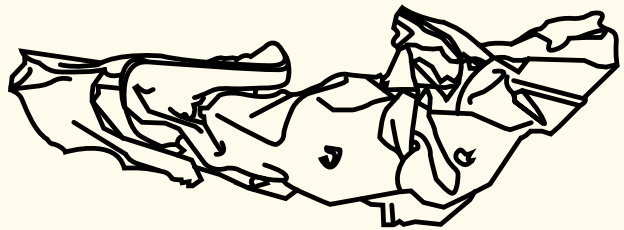
What could a croc do to a metal box? Crunch, crush and contort it!

A croc had fun with this flour drum, recovered from the Cato River in Arnhem Land, Northern Territory.

Before plastic containers were common, people stored flour in metal drums to protect them from insects and moisture.



**Before croc**



**After croc**

Crushed drum: Museum and Art Gallery of the Northern Territory collection

# ENORMOUS CROCODILES

5.48-metre-long Cassius held the Guinness World Record for largest croc in captivity, until he sadly died in 2024, aged about 120. He lived on Green Island near Cairns.

Who now holds the record is hotly debated – it's hard to safely measure a massive male croc! The biggest ever properly recorded was 6.2 metres long. It drowned in a PNG fishing net in 1980.

Trophy-hunting early settlers targeted big crocs as status symbols. Sizes were exaggerated and photos used forced perspective to make the crocs look bigger.

But removing the dominant male from a territory makes the area more dangerous. Smaller males move in and fight to take over. They're often aggressive to boats, as well as other crocs.

Hunting took our biggest wild crocs, but in the 50 years since it stopped, some have had a chance to grow.



Above: Cassius travelled to Green Island by ferry in 1987.

Credit: Marineland Melanesia



Above: George J Craig feeding Cassius (they had a special bond and died within weeks of each other).

Credit: Marineland Melanesia

# Biggest bite

Saltwater crocodiles have the strongest bite ever measured.

Researchers (very carefully) encouraged them to crunch a force gauge.

Salties come in at 16,460 newtons of force – compared to dogs at around 1,400 and humans at only 890.

(Great white sharks might bite stronger than salties, but they haven't been measured.)

A croc's incredible bite is powered by huge muscles that are too big to all fit in their skulls. They're what give crocs their chunky necks.



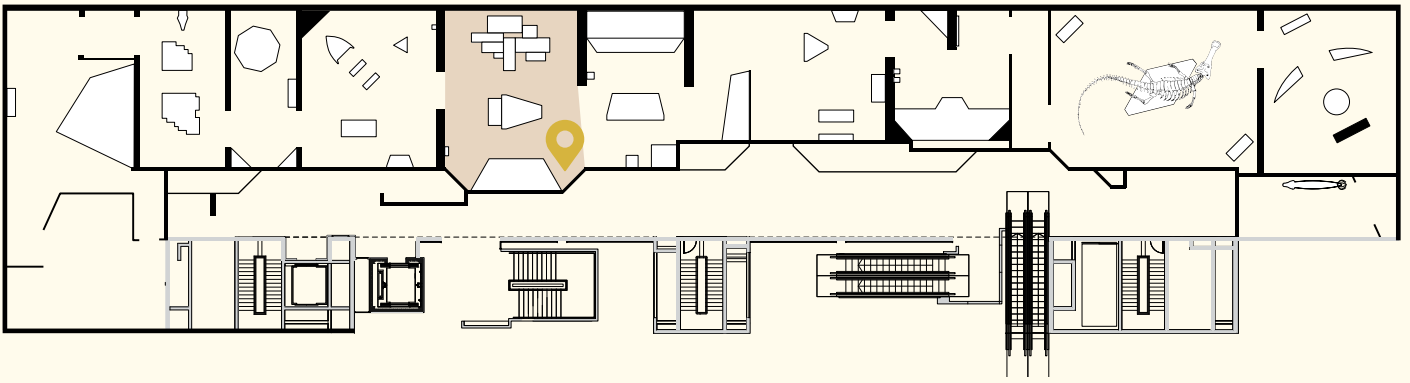
Are you as strong as a croc's bite?

Squeeze the handle as hard as you can.

Watch the gauge to see your strength.

Are you close to a croc?

# KINSHIP AND CONNECTION



# KINSHIP AND CONNECTION

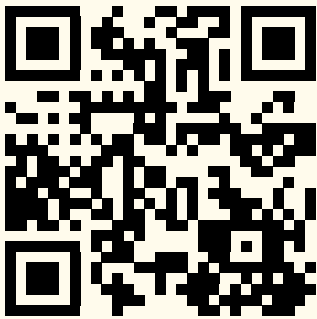
The crocodile means many things to different Aboriginal and Torres Strait Islander peoples in Queensland.

Crocodiles may be gods, totems, food, friends or foes. They feature in many stories, myths and legends.

Although it is impossible to represent the full scale and meaning of the crocodile for First Nations people, these objects show the human–crocodile relationship as part of a tangled web of kinship and connection.

# CULTURAL WARNING

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# ***Koedalaw Girer (crocodile dance)***

Alick Tipoti and his sons created this headdress and dance to celebrate and respect their crocodile totem. They were influenced by 19th century turtle shell masks, historical dance practices and objects.

The work is an important mode of cultural revival, keeping traditional Torres Strait Islander culture dynamic and alive, and educating younger generations of Badu Island people.

Queensland Museum collection



# ***Koedalaw Girer (crocodile dance)***

Interview with Alick Tipoti (Zugub), 2025, Badu Island, Torres Strait

Totem: Koedal

Stars: Zugubaw Baydham

Wind: Kuki Guuba

Videography: Phil Schouteten

Interview runs for 4:12 minutes.

# Crocodile Spirit Man

Wearable art created by Mylene Holroyd, Michael Norman and Jones Holroyd, 2018–23, Pormpuraaw Art & Culture Centre, Cape York.

Made from ghost nets – illegally discarded commercial fishing nets – that are cleared from beaches and waters by Traditional Owners.

Ghost net sculptures recycle these materials, turning environmental hazards into powerful artworks.

This piece represents the crocodile totem. Totems are vital in Thaayorre, Kugu and Wik culture, and inspire songlines and stories.

# Connections through time

These stone and ceramic objects from different eras all feature crocodile motifs, showing the enduring presence of the animal in everyday life.

Barambah Pottery jug, made by an unknown artist, between 1969 and 1985, at Cherbourg Aboriginal Settlement.

The jug features what became known as 'Cherbourg style' art with stylised x-ray animals and geometric motifs.

Queensland Museum collection

Blue and white pot, made by Edward Deemera, Gunggandi man, at Yarrabah Pottery.

Deemera was one of the first apprentices at Yarrabah Pottery and became a professional potter and artist.

Queensland Museum collection

Kolap (spinning top), collected in the 1880s or 1890s, from Mer (Murray Island).

The base is made from volcanic rock and the carved stick acts as the pivot point.

Tops like this were used in competitive games to see whose would spin the longest. They could last many days, and songs were sung throughout to encourage the kolap.

Queensland Museum collection

# Shield with crocodile teeth design

Created by Michael Boiyool Anning, 2011, Dulgu-barra, Yidinji.

Yidinji people from far north Queensland cut shields from the buttress roots of native fig trees and give them to young men for their initiation ceremonies.

Two men close to the initiate paint abstract designs on his shield, using rich ochre colours. The designs represent important animal and plant totems, identify which group the owner belongs to, and emphasise his spiritual relationship to Country.

Queensland Museum collection

Highly decorative masks made of turtle shell, feathers and other natural materials were used in rituals and ceremonies in the Torres Strait Islands and Papua New Guinea. The art of mask-making has been practiced for centuries, and similar masks and headdresses continue to be created and used today.

If you or your community have more information about these objects, please contact us via the QR code below.



Turtle shell, feathers, seed pods and plant fibres

Purchased at auction around 1895 from the property of Captain C.P. Downes, likely collected during a maritime expedition. It sold for six shillings (the equivalent of about \$56 today), revealing how cultural objects were valued in the past compared to today.

Wood, galvanised iron, cassowary feather, plant fibres and seed pods

Donated to Queensland Museum, May 1884 by Sir Arthur Hunter Palmer. Palmer's role as the Colonial Secretary meant that he interacted with public servants in the Thursday Island region.

# UNDISCOVERED

These artworks are by Queensland-based artist Michael Cook.

Cook is of Bidjara heritage. His portraits show Aboriginal people in alternative histories where power dynamics are often reversed.

These are two from a series of ten works created in 2010, which reflect on the 'discovery' and occupation of Australia by the British.

They question who really discovered Australia, and contrast what was already here with what was introduced by colonialisation.

Cook says:

*If you keep your own story, but do it really well with a strong aesthetic, people will understand it.*

Australian National Maritime Museum collection



*Undiscovered #5* shows an Aboriginal man dressed in full colonial-style clothing standing on the shoreline.

In his hands he holds a telescope. At his feet lies a crocodile, an Australian native.

The image presents the colonial narrative through the eyes of First Nations people.

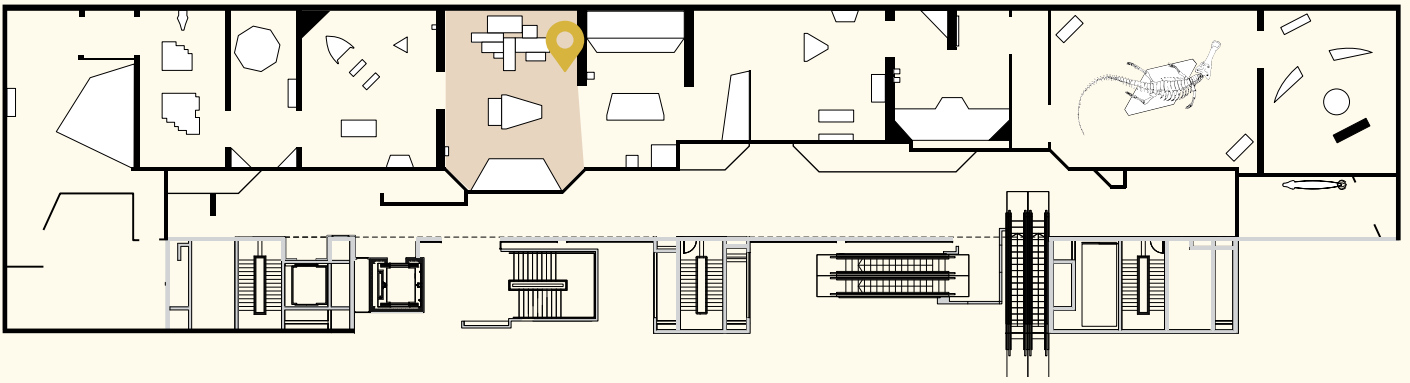


*Undiscovered #7* depicts an Aboriginal man walking along the shoreline dressed in only a cloth around his waist.

Over his shoulder he carries the British union flag. Beside him walks a crocodile, an Australian native.

Cook's use of photographs and his expert manipulation of the images adds a heightened reality to the staged settings.

# LORE AND LAW



# LORE AND LAW

From land rights to sea rights.

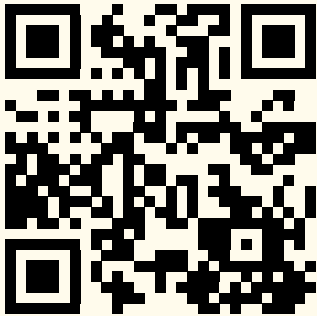
The Yolŋu Saltwater bark paintings are artworks and powerful legal documents, strategically educating outsiders about their profound connection to Sea Country.

Their creation was prompted by recreational fishermen desecrating the sacred home of Bäru, the ancestral crocodile. This led Yolŋu clans from Arnhem Land's Blue Mud Bay to launch a landmark native title case in the Federal Court, seeking recognition of their inherent sea rights under Australian law.

A historic decision ultimately granted Traditional Owners control over access to coastal waters between the low and high tidemarks across 80% of the Northern Territory's coastline.

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## Bäru at Murrmurra I

Painted by Miniyawany Yunupingu in 1998, this bark shows a Makarrata, a traditional Yolŋu ceremony for resolving conflict and administering justice.

Two ancestral beings clashed when Bäru moved into the area around Murrmurra and encroached on the domain of Gawanalkmirri the stingray.

The conflict was resolved when Gawanalkmirri speared Bäru in the thigh with his barb – a punitive act identifying the wrongdoer.

Following the clash, the barb broke off and transformed into the mangrove-dense area at Wäkuwala, embedding this ancestral drama into the landscape itself.

Australian National Maritime Museum collection



## Milky Way (Milnjiya) and crocodile

Carved by Baluka Maymuru, Yolŋu Matha/Mangalili language groups, Belanċ clan group, in 1987.

The canoe belongs to two ancestral hunters, Munuminya and Nyikawanga, who drowned when their canoe overturned. Their spirits went up into the Milky Way, a river in the night sky called Milnjiya. Some stars in the Milky Way form a crocodile constellation.

The stars on the crocodile's back are Mangalili people who have died and gone to join their ancestors. These spirits climb the Marawili tree with possum string (burrkun) to reach the heavens.

Museum and Art Gallery of the Northern Territory collection



## Baniyala Bäru at Yathikpa

Painted by Donald Nuwandjali Marawili in 1998.

Bäru is the ancestral crocodile of Yathikpa in East Arnhem Land, who brought fire during the creation time. With Bäru are often four Balin, the totem for barramundi.

The distinctive diamond-shaped miny'tji (sacred clan designs) in Madarrpa art represent the flames of the ancestral fire, and the intricate patterns on Bäru's back.

Miny'tji manifest Madarrpa law, ancestral knowledge, and their continuing connection to Country.

Australian National Maritime Museum collection



## Headless crocodile

Painted by England Banggala, Burarra language group, Gun-nartpa An-ngulinj clan group, West Arnhem Land, in 1970.

This painting was made in protest.

An art adviser once asked Banggala to make 'suitcase-sized' bark paintings. But when the adviser came to collect them, he received small barks of crocodiles with missing tails and heads.

When asked why he had painted like this, Banggala blamed the adviser for expecting him to fit the entire animal into such a small space.

This story conveys the artist's sense of humour and his integrity as a painter.

Museum and Art Gallery of the Northern Territory collection



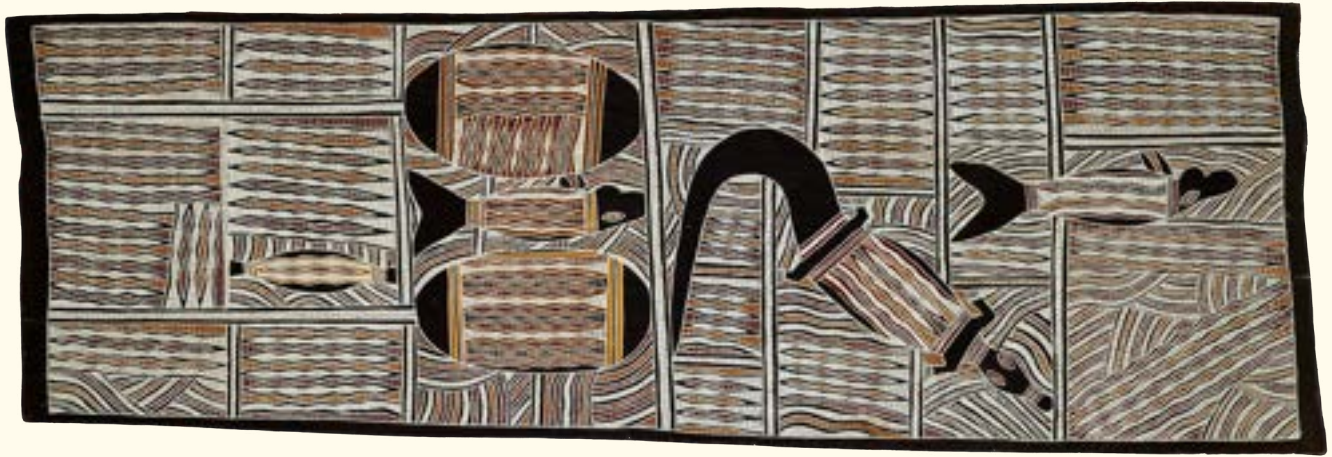
## **The crocodile ancestor come to Maragalidban in the Dreamtime and put the crocodile spirit children there**

Painted by Mick Gubargu, Kunwinjku artist, in 1970.

Mick grew up surrounded by the crocodile-filled waters of the Liverpool River and Maragalidban Creek.

This painting's title describes a key moment during the sacred era of creation, when the great ancestral crocodile journeyed across the land. He shaped important sites, established foundational law, brought fire, and left spirit-crocodiles at places like Maragalidban. These stories are a living heritage.

Australian National Maritime Museum collection



## Yathikpa

Painted by Bakulaṅay Marawili in 1998.

This painting shows the sacred saltwater of Yathikpa and the site of the original Bäru crocodile nest. At the centre is the ancestral crocodile Bäru, totem of the Madarrpa clan and part of their fire creation story.

The ancestral fire became an enduring sacred force at Yathikpa. It permanently scarred Bäru, compelling him to live in saltwater to soothe his burns.

Australian National Maritime Museum collection



## Bäru at Baraltja

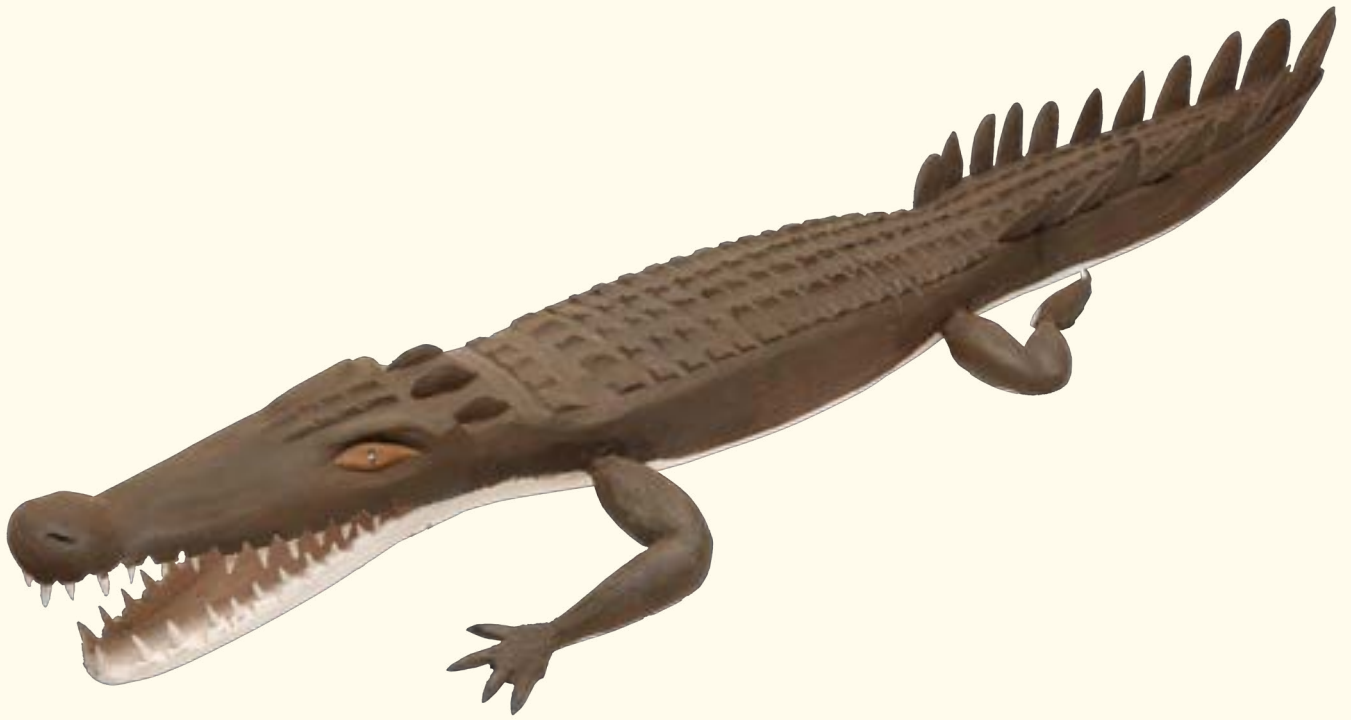
Painted by Nongirrŋa Marawili in 1998.

Here Bäru, the ancestral crocodile, is with Mundukul, the lightning snake, in the waters of Baraltja, a vital Yirritja floodplain where fresh and salt waters intermingle.

Mundukul tastes this mix from the floodplain and spits lightning into the sky. This is a sacred communication, a call to other lightning snakes across distant clan lands, which heralds the wet season and the ongoing cycle of renewal.

The painting highlights the deep interconnectedness of ancestral law, Country, and the powerful forces that shape it.

Australian National Maritime Museum collection



## **Bärü**

This work, created in 2018, depicts Bärü as the crocodile we know today – but he was also an ancestral man.

One day, fire engulfed his shelter and as Bärü tried to escape, flaming sheets of bark stuck to his back. In agony, he plunged into the water. The bark permanently scarred his back, creating the distinctive tough, patterned hide of the saltwater crocodile.

The ordeal left Bärü with an aversion to fire and a need for the coolness and solace of water, which is why crocodiles are always found living in and near water.

Australian National Maritime Museum collection



The crocodile ancestor come to Maragalidban in the Dreamtime and put the crocodile spirit children there

Painted by Kunwinjku artist Mick Gubargu in 1970.

# Croc spotter



## Make a beeline for Bäru

He's beneath a bark painting.  
It's a good spot for him as bark  
is important in his story.

Bäru was an ancestral man. One day  
his shelter caught fire and burning  
bark scarred his back – giving him the  
tough, patterned skin of a crocodile.

(Bet you thought only dogs  
had barks!)

Museum and Art Gallery of the Northern Territory collection



## Blue Mud Bay Sea Rights flag

Designed by Donald Nuwandjali Marawili, Madarrpa clan artist, Yilpara (Baniyala) community, East Arnhem Land.

It came from the landmark 2008 High Court decision that recognised Indigenous sea rights in the Northern Territory.

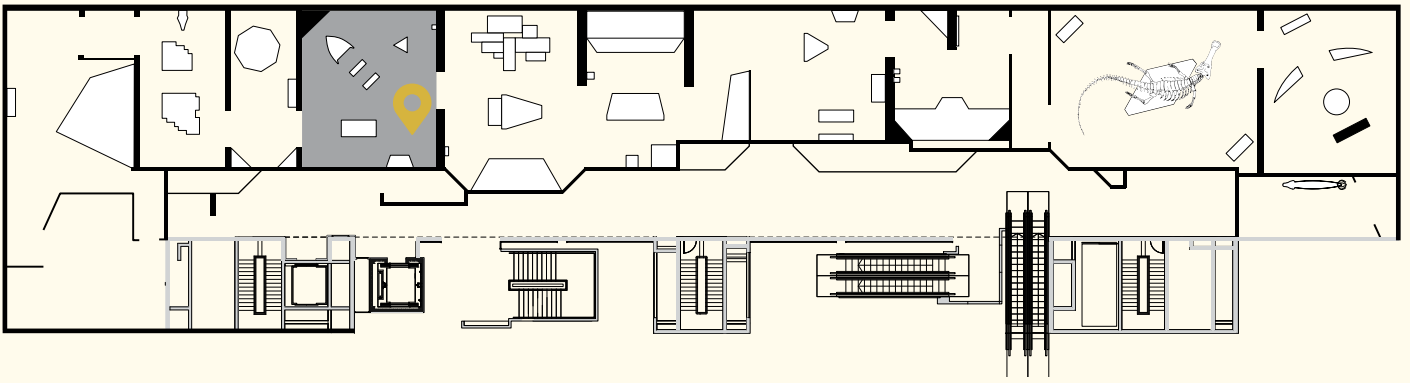
The design is rich in symbolism, with its colours speaking to the journey for recognition and decades-long history of Yolŋu people using art to protest against outsiders taking their land, resources and knowledge.

Australian National Maritime Museum collection



Hear Donald talk about his flag design.

# LIVING WITH CROCS



# LIVING WITH CROCS

Australians and crocodiles have lived together for many thousands of years.

Over that time, our relationship with them has varied.

Crocodiles have been both ruthlessly hunted and diligently protected.

They make us money through farming and tourism – dead and alive.

Croc populations are recovering from near-extinction, while human populations are increasing – so crocodile-human interactions are rising.

Researchers and rangers work to protect crocodiles and people from each other.

# MAKING A KILLING

Australian crocodiles were hunted for sport, skins and safety.

Before 1900, there were an estimated 100,000 saltwater crocodiles in the NT, but hunting almost wiped them out. Tough, rifle-wielding (mostly) men became the stuff of legend, making a dangerous living, often aided by unacknowledged Indigenous hunters.

Commercial hunting intensified after World War II, and by 1958, it is estimated 87,000 wild skins had been exported from the NT.

This unregulated hunting had an enormous impact on Indigenous communities, where crocodiles integral to kinship, totems, customs and ceremony disappeared from Country they'd shared for thousands of years.

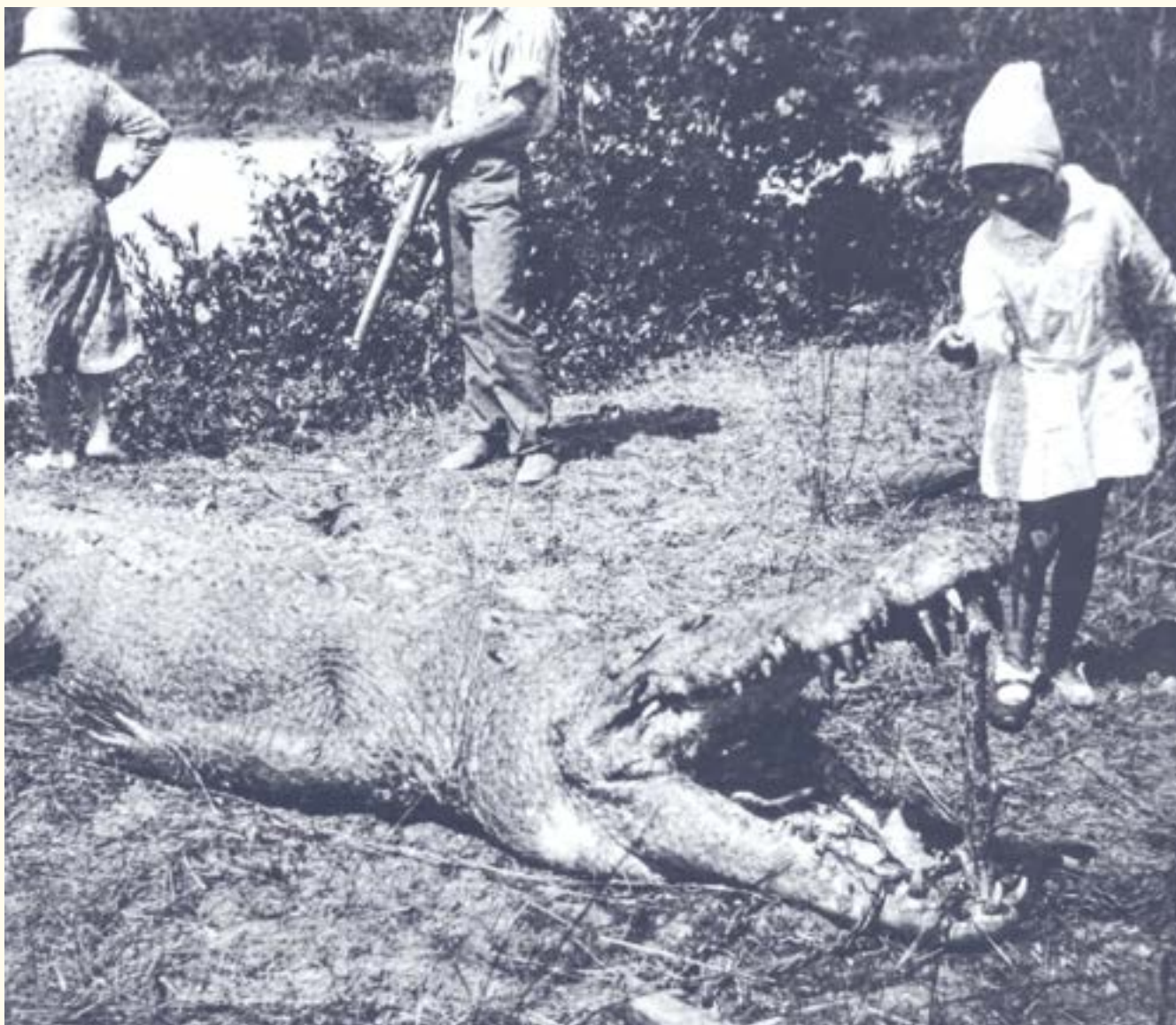
Regulation didn't begin until the 1970s, but now Australian crocodiles are protected species under federal law. Populations have bounced back; a conservation success story for a resilient animal.



## **Frocks and crocs – not all hunters were men**

Dulcie Campbell with two freshwater crocodiles at Sunday Gully, North Queensland, 1950

State Library of Queensland collection



Crocodile carcass, 1933

Museum and Art Gallery of the Northern Territory collection



Crocodile shooter Jack Ross drying crocodile skins on the Liverpool River, Arnhem Land, late 1940s

Museum and Art Gallery of the Northern Territory collection



## Record-breakers

Polish immigrants Ron and Krys Pawlowski began crocodile hunting in 1956, to support their family. The husband-and-wife team used shark hooks tied to trees. Once a croc was caught, they pulled it in and shot it.

In 1957, Krys shot to fame (literally) by killing an 8.63-metre saltie, the largest recorded (though its size wasn't verified).

But by the mid-1960s, the Pawlowskis realised crocs were in trouble. They transitioned to farming and campaigned for Australian crocs to be protected species.

Krys Pawlowski hunting, Gulf of Carpentaria, 1960s

Credit: George Pawlowski



Ron Pawlowski hunting, Gulf of Carpentaria, 1960s

Credit: George Pawlowski

## **Wap – traditional harpoon**

This 'wap', or traditional harpoon, was used to hunt crocodiles but also symbolises a landmark legal battle.

In 1994, Murrandoo Yanner, a Gunnamulla man, was taken to court for killing and eating two juvenile saltwater crocs. He argued that the crocs were killed on his clan's traditional Country, and he was exercising a native title right.

The case highlighted the conflict between western and First Nations conservation practices. The High Court eventually granted native title holders the right to fish and hunt, non-commercially, for traditional foods.

On loan from Murrandoo Yanner

## **Harpoon gun**

Used by professional croc hunter Brett Vincent.

Queensland Museum collection

## **Crocodile skin rifle case**

After World War II most croc hunters used rifles.

# CROC AND COLONISTS

Thomas Baines' watercolours show his encounters with crocodiles in the 1850s during the Royal Geographical Society expedition to northern Australia. (One was stepped on by a horse!)

He mistakenly calls them alligators, and his title *Killing the monster* suggests he wasn't a fan.

His paintings show the attitude of many explorers and colonists at the time, that crocodiles were a nuisance and should be killed.



*Alligator, Victoria River.* Painted by Thomas Baines.

National Library of Australia, nla.obj-1344117798



*Mr. Gregory's horse treads on an alligator while crossing Victoria River. Painted by Thomas Baines.*

National Library of Australia, nla.obj-134419099

# STOCK CROCS

Did you know that crocodiles are farmed like sheep and cattle?

There are over 20 crocodile farms across northern Australia, many owned by luxury fashion brands, and worth over \$120 million to the Australian economy.

They almost exclusively farm saltwater crocs, as they have the best skins for high-end fashion. The crocs are either bred by the farms or raised from eggs collected from the wild.

It's controversial. Supporters say farming reduces illegal hunting, while those against raise concerns about animal welfare.

## History

**1966:** Former croc hunters the Pawlowski's start a research farm at Karumba to test how to grow crocs in captivity. It closes in 1968.

**1972:** First commercial farm opens at the Edward River Mission, North Queensland, operated by the Pormpuraaw Aboriginal community.

**1979:** The Northern Territory opens its first farm at Noonamah, just south of Darwin.



Crocs at the Pawlowskis' research farm, Karumba, 1966

Credit: George Pawlowski

# EGGCELLENT HARVEST

The Arafura Swamp Rangers Aboriginal Corporation (ASRAC) collect saltwater crocodile eggs and rear the hatchlings.

*We are following the footprints from our old people.*

*Crocodile was our food source and then came skin trading.*

*We made this farm to build something for our children,  
this creates jobs and gives people independence.*



*When we see the first lightning strike, we know it is time to find nests.*

ASRAC rangers (with oars to fend off crocs).

Credit: Thomas Nicolon



Once a nest is found, rangers note its location and temperature.

Credit: Thomas Nicolon



The eggs are marked with pencil, so they can be kept the right way up. (If they're rotated, the embryo will die.)

Credit: Thomas Nicolon



The eggs are incubated at the temperature set to produce males.

They care for up to 2,000 a year, feeding the hatchlings feral water buffalo until they are 1 metre long. They are then sold to a farm.

Credit: Helen Truscott

# Like a hole in the head

## Can you see what likely killed this croc?

There is part of a harpoon lodged in its skull.

The skull was found long after the animal died, so it's difficult to be certain what killed it. But there are no signs of the bone healing around the harpoon, so it definitely died soon after being struck.

It was found on a floodplain near Nhulunbuy in the Northern Territory.

Museum and Art Gallery of the Northern Territory collection

## Croc farm products

Almost every bit of the animal is used; teeth, skin, meat, oil and more.

# Survivors' stories

Sit on the tinnie benches (tinnie is slang for an open aluminium boat) and hear from croc attack survivors.

**Warning:** recounts traumatic events.

Tom Nichols lost half a hand to a croc, and Johnny Banjo still has visible scars on his skull. Clarrie Nadjamerrek heroically saved nine-year-old Rodriguez, while Gary Lindner and Oliver Sheibe's experience led to important safety changes.

This tinnie, used to do croc surveys, was 3.8 metres long – smaller than a big male saltie.

Tinnie donated by Parks and Wildlife Commission of the Northern Territory.

# SPOTTING CROCS

## Can you spot the crocs?

Crocs are hard to see in the daytime but easier to spot at night. If you shine a light in a croc's eyes, they glow pink, orange or red. Crocs have a reflective membrane in their eyes, which helps their night vision and causes the reddish glow. Researchers use it to count crocs after dark.

Scientists are testing other ways to know where crocs are, trialling sonar to 'see' crocs underwater using soundwaves and using environmental DNA (eDNA). They can detect tiny amounts of DNA shed from crocs' skin and waste in water samples, uncovering even the most elusive crocs.



A light at night reveals lots of Orinoco crocodiles, Hato Masaguaral, Venezuela.

Credit: Daniel Llavaneras



## **Croc Bites**

In 1984, an 80-centimetre Nile crocodile was found living in the Paris sewers – probably a pet that grew too big and was dumped. She was named Éléonore and was moved to an aquarium.

# HOW TO BE CROCWISE



This safety education campaign aims to reduce the risk of croc attacks. Their advice includes:

1. Always obey crocodile warning signs.
2. Never swim or use small watercraft like kayaks and SUPs where there may be crocs.
3. Keep out of the water and keep people and pets at least 5 metres from the water's edge.
4. If you must approach the water, avoid crouching down and never use the same location twice.
5. Stay away from croc traps, nests and places with tracks and slide marks.
6. Never provoke or attack crocodiles and do not feed or leave food out for them.
7. Camp at least 50 metres from the water's edge.
8. Never clean fish, discard scraps, prepare food or wash dishes at the water's edge, and don't leave food scraps at your campsite.

# FAIR WARNING

Crocodile warning signs are used to remind people they are in croc country.

The absence of a sign does not mean there are no crocodiles in the area.

If you see one, obey it – they are there for your own protection.

Permanent signs are used in croc habitats, and temporary signs are installed following sighting reports or incidents, to keep people informed.

Signs on loan from Queensland Government and Parks and Wildlife Commission of the Northern Territory.

# Sensational skin

How does it feel to touch a croc?

Do you like the feel of crocodile leather?

Can you tell which parts of the animal they're from?

# Death roll

**Turn the wheel to crank the croc.**

It's called a **death roll**.

If crocs seize prey that's too large to eat in one gulp, they roll their powerful bodies to rip off pieces.

Crocs can't chew, so need to tear off bits small enough to swallow.

# Croc spotter



## **Will the tiny trap catch the croc?**

This is a 1:10 scale model, meaning the things are ten times smaller than in real life. (Scaled-down crocs are cute!)

Rangers use real traps to safely capture crocs for research or relocation. This model trap was 3D printed and the water is made from resin.

Made by Wild Creek Graphics® in Western Australia

# Trapping tools

From tried-and-tested traps to the latest tech, the Queensland Government uses a range of tools to help them study, monitor and manage crocodiles.

Objects on loan from the Queensland Government

## Satellite tag (on replica head)

Tags allow crocs to be tracked via satellite, telling researchers where crocs go and how long they stay there. Understanding croc behaviours and movements helps manage them safely.

## DNA sampling kit

Croc DNA tells us where crocs are from and how they're related. But it can be dangerous collecting it! A biopsy punch on the end of an extendable pole is quick and effective.

# SwellPro Splash Drone 3+

In 2019, researchers developed a new way to capture crocodiles, using drones carrying a baited noose.

They skim bait across the water. Crocs are attracted by surface movement, so swim towards it.

When the croc grabs the bait, the drone tightens the noose on the top jaw and the boat comes in to complete the capture.

Drones are great for trapping wary crocs. The speed of capture (less than 15 minutes) reduces stress and the risk of injury.

# STAY-AT-HOME CROCS

Queensland crocs are homebodies. Research shows 90% of them stay within 50 kilometres of their birthplace. In the Northern Territory, they roam more widely.

Wildlife rangers adapt their strategies to suit the behaviour of their local crocs.

In Queensland, croc management and research are managed through the Department of the Environment, Tourism, Science and Innovation.

Its researchers and rangers study and monitor crocs to gather accurate and up-to-date information. This helps them manage crocodile risks, inform the community and brief policymakers.

Trackers on crocs show their movement, with their size and gender affecting how far they roam.

### Compare the tracks of these three:

#### JK

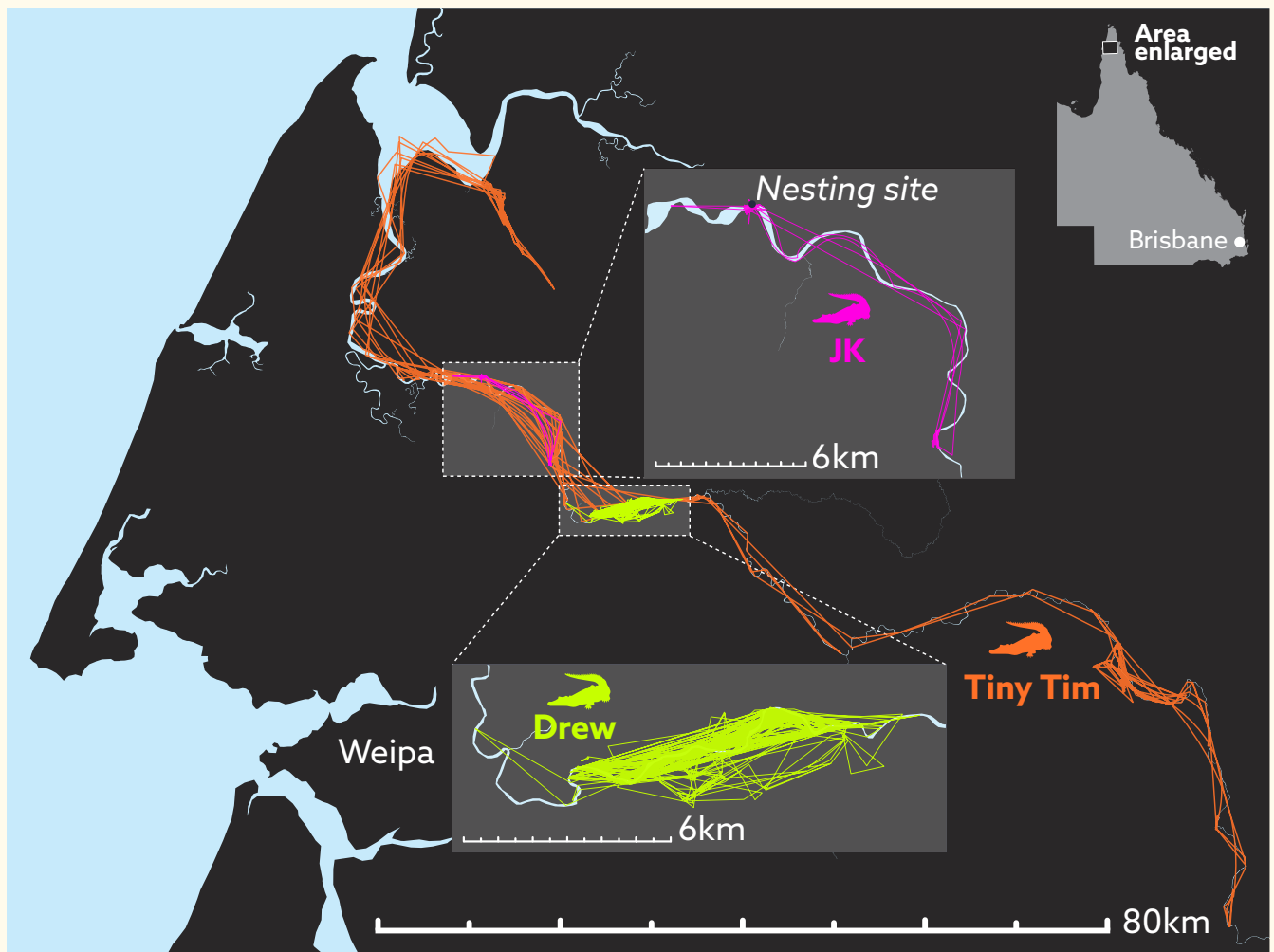
A 2.9 m female who spends part of the year upstream, but in the wet season, heads to her nesting site in the wetlands.

#### Tiny Tim

A nomadic 3.6 m male, who has to keep moving until he can find a territory of his own.

#### Drew

A 4.34 m boss croc who defends his territory on the Wenlock River.



# TOAD TRAINING

How do you stop crocs poisoning themselves with cane toads?  
Train them not to!

Invasive cane toads poison and kill almost anything that eats them. When cane toads reach a new area, they can kill all the local crocs.

Freshwater crocs are top predators, so losing them has a huge impact on the ecosystem. They are also culturally significant to the Traditional Owners.

Scientists, led by Dr Georgia Ward-Fear, the Bunuba rangers and the WA government are using Condition Taste Aversion (CTA) training to save the freshies.

They catch cane toads, remove the toxins and inject lithium chloride. Then they stake them along the waterways.

If a croc eats a CTA toad, the lithium chloride makes them feel a bit sick, but they soon recover and will have learnt not to eat toads.

## Does it work?

**Yes!**

The crocs learnt fast. They went from taking toads to sniffing them first. After five days of training, they'd ignore most of them.

The crocs still took chicken, so it was only the toads they'd learnt to avoid.

After this training, there were no deaths in areas toads had just reached, and very few in areas that already had toads. The training works both ahead of and behind the toad invasion, and croc populations are recovering.



A croc approaches the bait.

Credit: Dr Georgia Ward-Fear, MQU

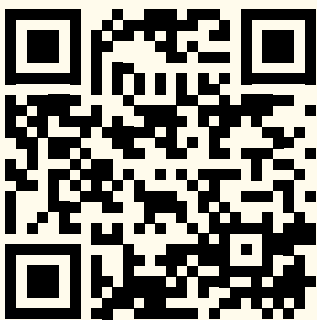
# ATTACKS

The deadliest animals in Australia are horses – they kill over 10 people a year, followed by cows, then dogs, then kangaroos!

Crocodiles are way down the list. On average, salties in Australia kill one or two people a year, mostly those swimming or fishing.





There are many more deaths in countries like Indonesia, where people must access waterways to wash, fish and collect water. All are recorded in the worldwide crocodilian attack database, compiled by researcher Brandon Sideleau.

**Scan the QR code to explore the database.**



Attacks on humans aren't always about crocs feeling hungry.

They may be:

-  defending their territory
-  protecting their nests or young
-  acting in self-defence if threatened or accidentally stepped on
-  attacking humans by mistake while targeting their pets or fish catch.

Croc attacks are not random acts of aggression and can usually be avoided if people are careful in crocodile habitats.



Above: In Timor-Leste, cattle herders can't avoid crocs.

Credit: Brandon Sideleau

# LOCKED-UP CROC

This skin is from Sarge, who died of old age when he was 80-100 years old.

Sarge had an eventful life.

He lived around Bamaga, near the tip of Cape York, until he ate police sergeant Dennis Black's dog, not far from a kindergarten.

Labelled a 'problem croc', he was apprehended and spent the night in the local watchhouse, earning his name, while they built him a travel crate.

He flew to Cairns on a chartered DC-3 and spent his 20 to 30-year retirement being fed and entertaining tourists at the Australian Crocodile Park (now Hartley's Crocodile Adventures).

On loan from Hartley's Crocodile Adventures



Sarge in the cell

Credit: Peter Freeman

# VISITING CROCS

Tourists love crocodiles!

They take tours to find wild ones, get up close to captive ones, take selfies by sculptures and shop for souvenirs.

Tourists bring money. They spend to see crocs, but also to stay, to eat and more, contributing millions of dollars.

Many businesses cash in on crocs. The best also teach people about crocodiles, so they respect and value them.

## READ ALL ABOUT IT

Crocodile attacks have hit the headlines for hundreds of years.

Here are a few examples.

**Look at the language used. How does it make you feel about crocs?**

Sensationalist language sells papers and collects clicks but is misleading and reinforces negative views.

For example, crocodiles don't infest waterways, they live there. And they are not monsters, they're incredible animals.

# LASTING LEGACY

Steve Irwin, 'The Crocodile Hunter', was a worldwide phenomenon, an expert in crocodile research who was passionate about protecting them.

Steve's messages about crocodiles and conservation reached millions across the globe, inspiring them to appreciate these misunderstood animals.

Today, Steve's legacy is continued through the work of his family, the team at Australia Zoo and the Wildlife Warriors charity Steve founded. It funds conservation projects and research worldwide, along with a wildlife hospital in Queensland. Their iconic Australia Zoo has grown to over 280 hectares and employs over 500 staff.

The Steve Irwin Wildlife Reserve, on the Cape York Peninsula in Queensland, is home to the largest crocodile research project in the world. By studying their diet, movement patterns, nesting and behaviour, researchers provide vital information to help understand crocodiles and how to live alongside them.



Above: Steve and a crocodile during a research trip

Credit: Australia Zoo



Above: Robert, Terri, Bindi and Chandler on the Steve Irwin Wildlife Reserve, continuing Steve's legacy of crocodile conservation

Credit: Australia Zoo



One of Steve's iconic khaki uniforms

On loan from Australia Zoo

Steve's boot with toothmarks from moving 'Scrappa'

On loan from Australia Zoo

***NO WAY  
YIRRIKIPAYI!***

# NO WAY YIRRIKIPAYI!

Yirrikipayi the crocodile lives on the Tiwi Islands, near Darwin, and he's hungry. But his hunt doesn't go to plan.

Come and uncover his story, written by children from Milikapiti School, Melville Island.

In many First Nations communities, culture and tradition are passed down through song and storytelling, including knowledge about crocodiles.

Story, pictures and storytelling courtesy of the Indigenous Literacy Foundation, Milikapiti School and Aunty Nina Black.



# Croc Bites

Bindi Sue Irwin was named after a beloved crocodile (Bindi) and Steve's pet dog (Sui).

# Croc spotter



## **For real!**

These are actual crocodiles that have been preserved and stuffed – a process called taxidermy.

**Can you tell which is the saltie and which is the freshie?**

Queensland Museum collection

# POPULAR CROCS

# POPULAR CROCS

Our pop culture is packed with crocs.

As both heroes and villains, they're on our screens and our bookshelves, in our toy cupboards and our locker rooms.

We wear them, read them, watch them and play with them.

They're an inspiration.

**Who's your favourite famous croc?**

# CROC STARS

Crocs on screen seem to either sing to us or scare us.

But from Lyle to Dundee, Lake Placid to Black Water, crocs are blockbuster movie stars.

They have a wide repertoire, spanning kids' films to horrors, even romantic comedies. (Some are better than others!)

# CROC POP ART

Franck Gohier is an Australian painter, sculptor and printmaker based in Darwin. Since the 1980s, he has used satire, humour and pop culture imagery to explore social and cultural issues, reimagining the bold visuals of vintage comic books and retro advertising to tell deeply personal stories.

He also founded Red Hand Prints, an open-access printmaking studio that offered free tuition to Darwin locals, and professional printmaking services to numerous Indigenous communities.

Much of Franck's work draws inspiration from the people, events, frontier mentality (and crocodiles) of the Northern Territory. He blends autobiography with social critique and explores how identity is shaped by place.

## ***Boxing Croc***

Featuring the iconic boxing crocodile of Humpty Doo, this work was produced to promote Franck's social enterprise, Red Hand Prints.

Museum and Art Gallery of the Northern Territory collection.  
Facsimile reproduced with permission of the artist.

## ***Charles Atlas***

Inspired by a body-building ad, this work satirises the stereotype that NT men must be physically strong to survive the harsh frontier.

On loan from the collection of the artist and Mitchell Fine Art, Brisbane.

## ***Picnic at Berry Springs***

Drawing inspiration from jungle heroines of 1940s comics, this work is a tribute to the resilience of Territory women, especially the artist's mother.

Museum and Art Gallery of the Northern Territory collection.  
Facsimile reproduced with permission of the artist.

# Mythbusting movies

Croc films don't always get it right.

In *Crocodile Dundee*, the drink bottle would have been squashed flat by the croc's bite. (And Mick wouldn't have been able to stab the croc through its thick skull.)

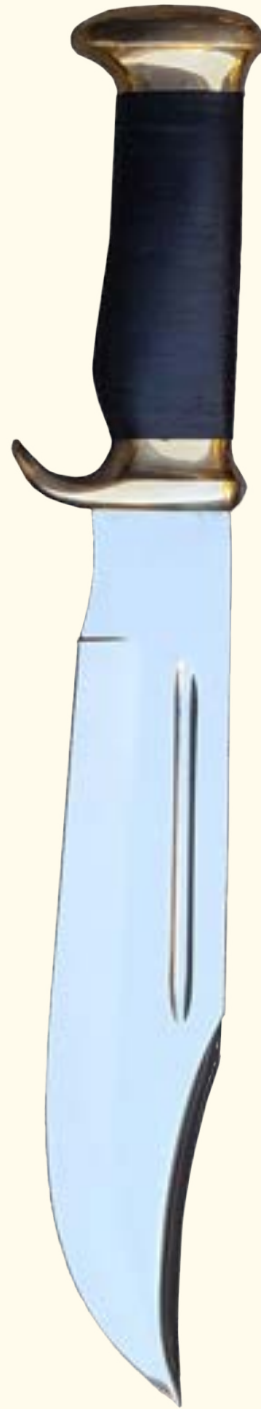
*Lake Placid* in Maine, USA, is far too cold for crocs.

And *Rogue* got it wrong when the croc kept killing – one person would have satisfied it for ages. (And dogs aren't allowed in our national parks).

Next time you watch a croc film, see if you can spot any mistakes.



That's a knife.



**Something's afoot!**

This croc foot (not pictured) is now a bookend.

**We've created a copy you can touch.**

**Feel the webbing between its toes.**

Museum and Art Gallery of the Northern Territory collection



## **Croc Bites**

The world's top croc collector is UK-based Andrew Gray, who (in 2015) had 6,739 crocodile-related items.

It started in 2000 when he went out to buy furniture but bought a wooden crocodile instead.

# TOOTHY TOYS

## Do you have a toy crocodile?

We have been playing with them for a long time. Archaeologists in Egypt found clay croc toys that were 4,000 years old.

Traditionally crocodiles have represented the devil or the villain, but are now often cute and cuddly.

Research by zoologist Vladimir Dinets shows crocodiles like to play with toys too.

Zoos often give them balls for amusement, but they've also been seen playing with floating blossoms. Apparently they like the pink ones.



# DESIGNER CROCS

The sense of danger and the intricate and unusual textures of crocodile skin mean it has long been associated with luxury and high-end fashion.

Beyond the leather, crocodiles themselves also serve as brand identities for fashion labels. Two brands stand out: Lacoste and Crocs™.

# ILLEGAL CROCS

It is illegal to bring croc items into Australia without a permit. They break international laws that help protect wildlife, and will be confiscated.

CITES (The Convention on International Trade in Endangered Species of Wild Flora and Fauna) lists about 5,600 species of animals, including all crocodiles. In 1992, it created a universal tagging system for crocodilian skins that has reduced illegal trade.

Items donated by Department of Climate Change, Energy, the Environment and Water

# GO CROCS!

Crocodylians are fast, strong and deadly – a natural fit for a sports team.

In Australia, crocs front basketball, rugby and Aussie rules teams.

Overseas are the Florida Gators American footballers, lots of swim teams, football teams and the Miami Caiman e-sports team.

There's even a German ice hockey team, though crocodiles aren't really associated with ice ... or Germany!

# Crikey croc

This latex crocodile head was made by Queensland-based prop maker Adam Head for the 2002 film *The Crocodile Hunter: Collision Course*, starring Steve and Terri Irwin.

The movie pits Irwin against rogue CIA agents sent to track a crocodile that has ingested a top-secret weapon. It uses the unique blend of education, adventure, entertainment and activism the Crocodile Hunter is known for.

Poster illustration: Drew Struzan, who also created the *Crocodile Dundee* poster art and many iconic film posters.





## **Croc Bites**

The Diamond Himalaya Birkin bag from Hermès is made from Nile crocodile skin dyed white and grey, with 18-carat white-gold hardware, and over 200 diamonds. It will only cost you \$790,000!

The most expensive handbag ever sold at auction was also made from croc skin.

# Crocs™

First made in 2002 as boat shoes by three friends from Colorado, USA. All Crocs™ shoes are made from the company's proprietary closed-cell resin, Croslite™. In 2010 TIME magazine named them one of the worst 50 inventions. But their appearance at London Fashion Week in 2016 started their rise to fashion phenomenon.

**Famous for:** Shoes you either love or hate.

**Why crocs?:** Because they're designed to perform on both land and sea.

# Lacoste

Started in 1933 by French tennis star René Lacoste. He invented the polo shirt to allow tennis players to move more freely: they all used to wear long sleeves.

**Famous for:** Polo shirts

**Why crocs?:** His coach offered to buy René the crocodile-skin suitcase he'd admired if he won his next match. He lost, but the American press still nicknamed him 'The Alligator'.

René embraced it, embroidering crocodiles on his jackets and using them as his logo when he started his company. His was the first brand to feature a logo on its clothing.





**DIVE OUT**

Crocodiles are amazing animals,  
whose superb adaptations have seen them  
survive for hundreds of millions of years.

Humans have lived alongside these  
incredible creatures for many thousands of years.  
Over that time, we've formed powerful  
cultural connections to them.

Crocs play vital roles in our communities,  
economies and ecosystems.  
They can be dangerous, but they're also vulnerable,  
affected by climate change and loss of habitat.

We must both respect and protect them.

## **Crocs in seagrass**

Filmed by drone in the northern Kimberley, Western Australia.

Credit: Michael Haluwana, Aeroture

# ***Spirit Removed***

Created by Bernard Lee Singleton Jr., Umpila, Djabugay/Yirrgay man, 2024.

This artwork warns of the dangers of perceiving the environment as separate to us, which makes it acceptable to dominate and exploit. Both humans and animals suffer when land is occupied.

Singleton says:

*'[Our] Spirit stands as an inner witness to the desecration of Country; its very essence taken by the insatiable hunger of greed...'*

**Scan the QR code to explore a 3D model.**



Queensland Museum collection



Pick up the handset to hear Bernard talk about his artwork.

# THANK YOU

*Croc! Lost Giants to Living Legends* is a collaboration between the Australian National Maritime Museum, Queensland Museum, and the Museum and Art Gallery of the Northern Territory.

## STEERING COMMITTEE

Dr Bianca Beetson, Peter Denham, Peter Fray, Adam Worrall

## EXHIBITION MANAGEMENT

Richard Stride (lead), Emma Bain, Samantha Bourke, Eileen Hsu, Will Mather, Wendy Wood

## SCIENTIFIC AND CURATORIAL DIRECTION

Em Blamey (lead), Dr Kirsti Abbott, Dr Andrew Amey, Dr Elizabeth Bissell, Dr Scott Hocknull, Peggy Kasabad Lane, Matt Poll, Dr Adam Yates

## EXHIBITION DESIGN AND PRODUCTION

Laura Siebold (lead, design), Tharren Bowe (lead, construction), Peter Buckley, Gene Chantrill, Daniel Houweling, Maziar Kazemi, Todd Knight, Adam Laerkesen, Christopher Lane

# **GRAPHIC DESIGN, EDITORIAL, PHOTOGRAPHY, DIGITAL AND AUDIOVISUAL**

Kelli Grennan (lead, graphic design), Megan Harris (lead, editor), Mark Bayliss, Georgina Campbell, Laura Cantrell, Gary Cranitch, Janine Flew, Katie Hagebols, Paul Hemshall, Dean Hutchinson, Kirsten Jackes, Nicole Polzi

# **COLLECTIONS, PREPARATION AND CONSERVATION**

Jared Archibald, Kevin Bray, Emily Collins, Alana de Laive, Peter Drogitis, Jeff Fox, Wendy Garden, Sara Higgs, Amy Heffernan, Suzanne Horner, Karen Kindt, Tamlyn (Andi) Macdonald, Carolyn McLennan, Bryony Nainby, Kerry Nancarrow, Julia Owens, Rebekah Raymond, Agata Rostek-Robak, Anupa Shah, Neeha Velagapudi, Rhiannon Walker, Rebecca Webb, Karen Wilcox, Lee Wilkes, Cameron Wood, Sandra Yee

# **PARTNERSHIPS, EXPERIENCE, MARKETING AND COMMERCIAL**

Georgina Anthonisz, Caitlin Conway, Ali Copley, Annalice Creighton, Jude Dawson, Alicia De Audney, Heather Docker, Cathy de Silva, Katherine Duhigg, Cassie Grace, Anna Gregory, Sam Hayward-Sweedman, Stephanie Hickson, Natasha Holloway, Tina Koutsogiannis, Arfa Noor, Christine Robertson, Alex Rudzinski, Penny Russell, Karla Warner

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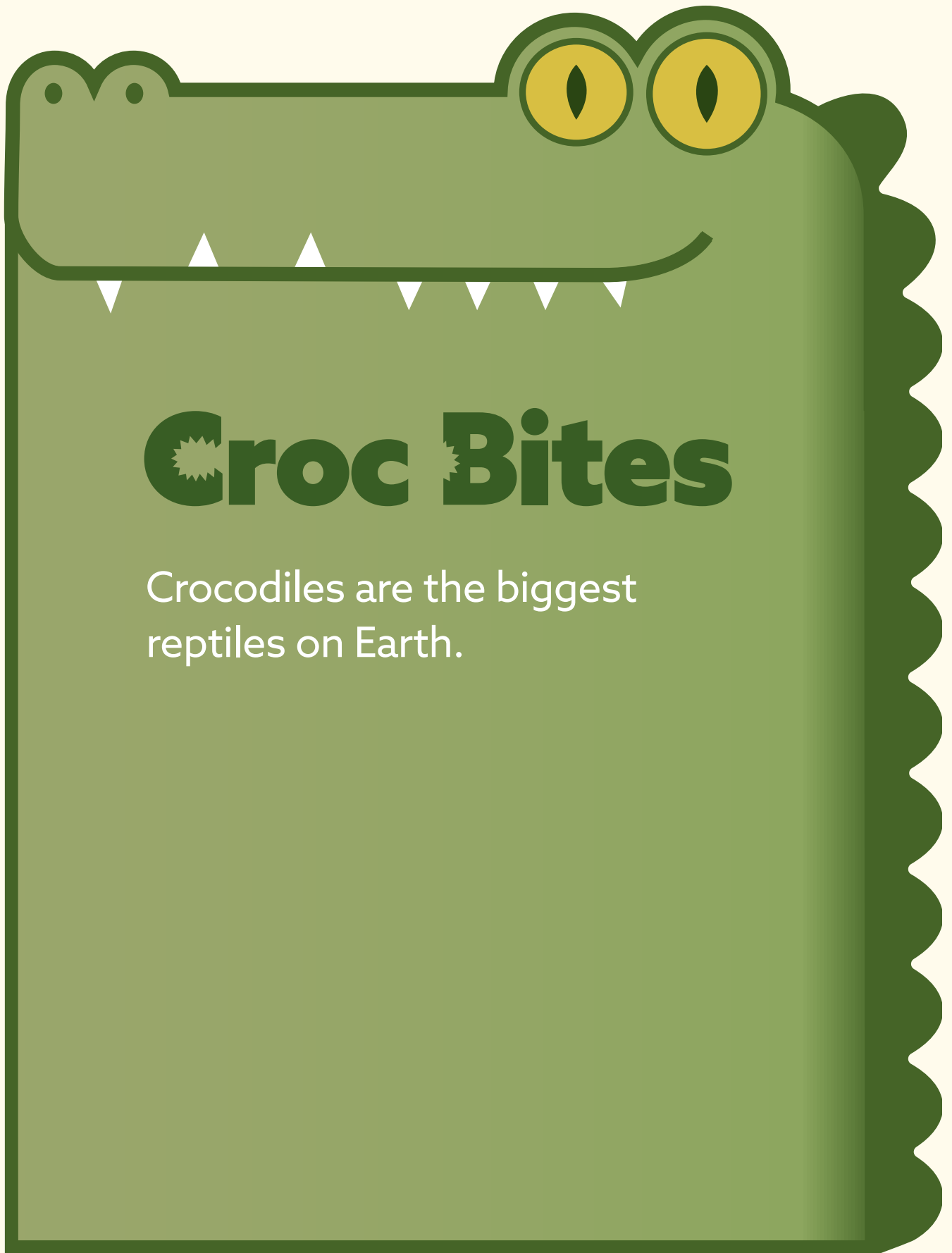
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## **Croc Bites**

Crocs can swim at 35 kph  
– four times faster than an  
Olympic swimmer.



# Croc Bites

Crocodiles are the biggest reptiles on Earth.

# Croc!

LOST GIANTS TO LIVING LEGENDS