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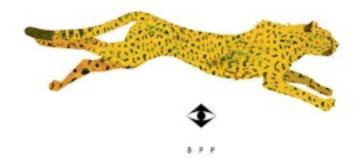
# THERE ARE

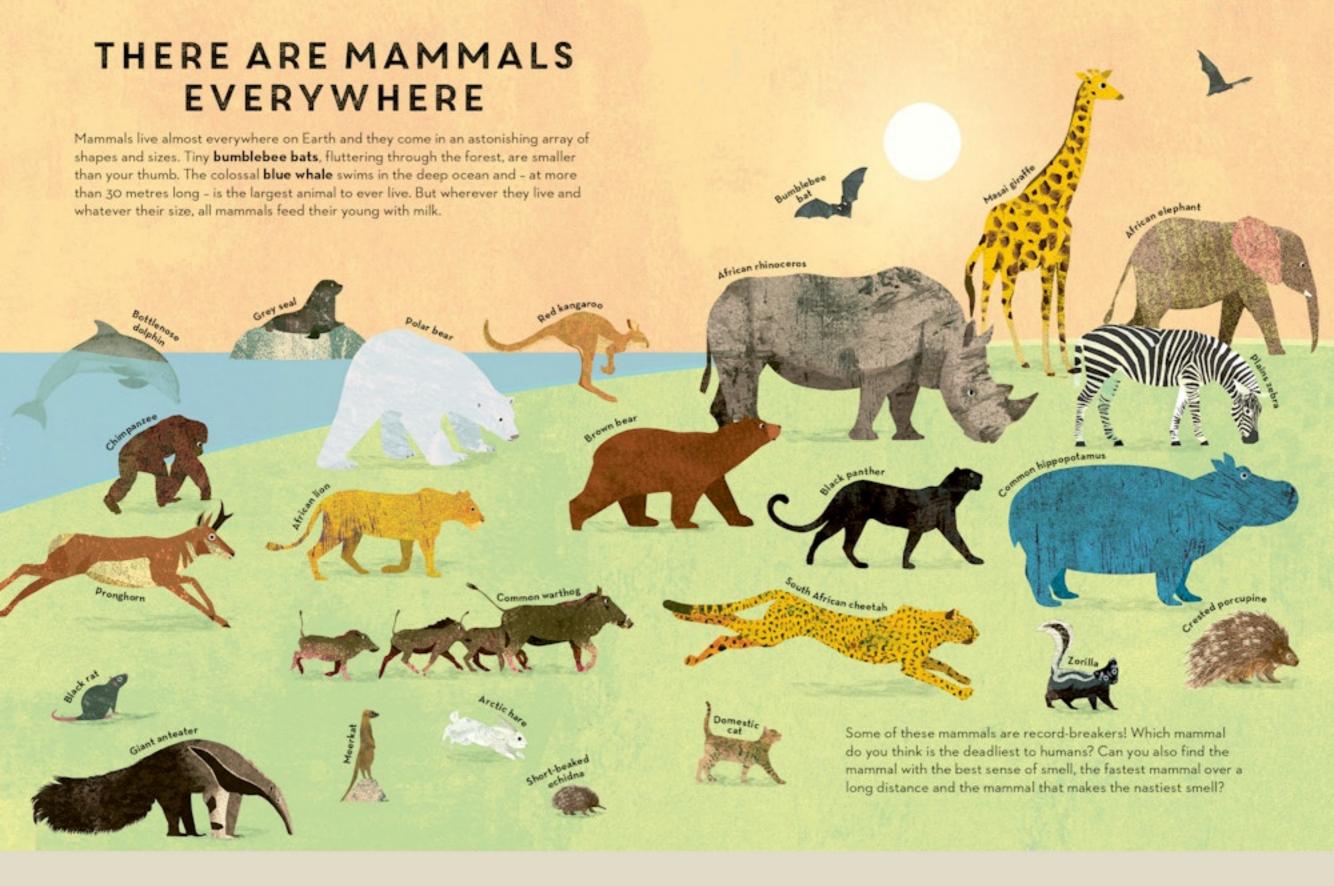
# MAMMALS

**EVERYWHERE** 



ILLUSTRATED BY BRITTA TECKENTRUP
WRITTEN BY CAMILLA DE LA BEDOYERE





# IT'S A MAMMAL! (SO WHAT IS THAT?)

There are almost 6,000 species of mammal alive today. Mammals may look very different on the outside, but they all have bony skeletons that allow them to perform a wide range of movements. Some mammals have four legs and a tail, but others walk on two legs, fly using two wings, or have flippers and fins.

# BIG BRAINS A mammal's brain is protected by a bony case called a skull. Mammals all have big brains for the size of their bodies. All mammals use lungs to breathe air, even the mammals that live in water. Air reaches the lungs through the nose or mouth and the lungs absorb exygen.

Members of the cat family have strong, bendy bodies that allow them to run, climb and pounce. They have powerful legs and feet that are equipped with claws, and their jaws are lined with sharp teeth. Long tails help them to balance as they quietly stalk their prey.

CATS

# BATS

Bats are the only mammals that have wings and can fly. Their wings are made up of large sheets of leathery skin that are stretched between the long, skinny bones of their front limbs and their legs. The largest bats are huge, with a wingspan of 150 centimetres or more.

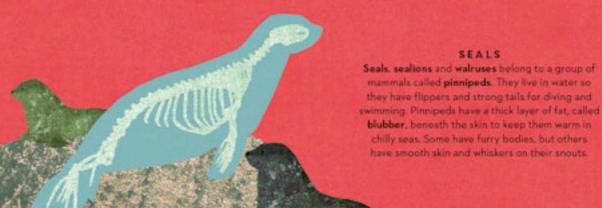
> Fur is often coloured with spots or stripes to Long, bendy spine provide camouflage

Eyes face forwards to

# focus on prey

Large muscles for running

Claws for gripping on to the ground or tree bark



# RECORD-BREAKERS



Black rats may not look deadly, but they are more dangerous to humans than any other mammal because they spread disease, including food poisoning and plagues.

Everyone knows that dogs have a superb sense of smell, but it's polar bears that have record-breaking snouts. They have been spotted following the scent of seals across the ice for over 60 kilometres!

BREATHING AIR

from it. The oxygen passes into the

blood vessels and the heart then

pumps the blood around the body.

The fastest mammal over a long distance is actually the pronghorn. It can keep up a top speed of 56 kilometres for an hour before it needs a rest.



Many mammals make foul smells to scare other animals away, but a zorilla could probably out-stink them all. It sprays a burning liquid from its bottom that smells so terrible even lions turn tail when they see a stripy zorilla nearbyl



# MAMMALS HAVE BEEN AROUND FOR AGES

Mammals have been around for a really long time. The first mammals looked like shrews, which are tiny mouse-like animals with long, whiskered snouts. They lived about 230 million years ago, when dinosaurs walked the Earth and none of them grew much bigger than a cat! When the dinosaurs died out, mammals began to change and evolve into the vast range of creatures that live today.



The mighty Gigantopithecus was one of the tallest mammals to ever live - reaching an impressive 3 metres in height. This giant ape lived in warm forests one million years ago.



210 MILLION YEARS AGO

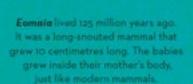
Morganucodons were amongst the earliest mammals to live. They were small, furry creatures that are insects.



Two million years ago, our human ancestors would have kept a safe distance from this giant rhinoceros Elasmotherium was a plant-eater but it was equipped with a huge, scary horn on its head.









Monkeys and ages evolved from animals like Apidium, which lived 30 million years ago. Apidium jumped from branch to branch, eating fruit and flowers, just like many of its modern relatives.



Woolly mammoths had long, shaggy fur to keep them warm during the last Ice Age. They went extinct about 5,000 years ago when temperatures increased. The first horses were the size of a cat and ate leaves instead of grass.

Sifrhippus lived about 50 million years ago, when the world was much warmer than it is today.



Forty million years ago, the first whales lived on land, not in the seal Pakicetus probably spent most of its time hunting on land, and occasionally paddled about in shallow water, looking for fish to eat.



The tallest land animal today is the giraffe. It can reach 5 motres in height and uses its long neck to reach the juiclest leaves high up in the trees.

# WHY ARE MAMMALS UNIQUE?

Mammals are a large and very successful group of animals. They have been able to spread across the world and survive in all sorts of habitats because they have some unique ways to stay warm, feed their young and get food.

#### WARM BLOOD

Mammals are warm-blooded - which means they can control their body temperature. This allows them to stay warm even if the weather turns cold, or if they live in cold water. They can also cool themselves down when they get too hot - they often do this by sweating or panting. African elephants flap their huge ears to cool down!



## BIG BRAINS

Many mammals are intelligent animals that can play, learn and solve problems. This helps them to develop the skills they need to stay safe from predators and to find food.

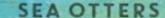


Hairs grow from a mammal's skin, creating a thick fur coat that has many uses. It keeps the mammal warm and its colours and patterns can help to camouflage the mammal, so it can hide from predators.

FUR

## BABIES AND MILK

Almost all mammals give birth to their babies (rather than laying eggs) and feed them with milk that the mother makes in a special part of her body called mammary glands. The milk is the perfect food for the babies and it protects them from disease.



Sea otters can be spotted floating in the Pacific Ocean. Their favourite habitat is around a kelp seabed, where the world's largest and fastest-growing seaweed grows. The otters dive below the waves to find shellfish, fish and crabs to eat.

Sea otters have an incredible 125,000 hairs growing from every square centimetre of skin! The hairs are very fine and trap air between each strand. The air keeps the otter warm, like a thick, waterproof blanket. It also works like a life jacket, helping an otter to float.

A sea otter mother gives birth to one baby at a time, called a pup. While she floats in the water, she rests the pup on her belly.

3. The sea otter floats on its back and rests the stone on its belly. It bashes the shellfish against the stone until it cracks open.

2. Some shellfish are very tough so the otter also collects a stone from the seabed and swims to the surface.

1. A hungry sea otter uses its hand-like paws to pick sea urchins off the kelp or shellfish,

such as clams, from the seabed.

CAN YOU FIND?

Long-spined sea urchins eat the giant kelp and damage the sea otters' habitat. How many sea urchins can you spot grazing on the huge fronds of seaweed?



# WHERE DO MAMMALS LIVE?

Nearly all species of mammals live on land - about 98 per cent of them. However, there are groups of mammals that spend most, or all, of their lives in water. These include **pinnipeds**, **whales** and **dolphins**. Other groups of mammals are superb swimmers and spend lots of time in the water, but choose to stay on land when they give birth or raise their young.

# WHALES

Whales are perfectly adapted to life in the ocean. They have smooth skin and torpedo-shaped bodies that slip easily through the water. They have flippers instead of legs and they breathe using blowholes on the top of their heads. Whale mothers give birth in the ocean. Their babies are called calves and they stay close to their mothers while they grow and learn how to find food.

Blue whale babies are enormous and they grow a thousand times faster than a human baby!

# BEAVERS

Beavers belong to a group of mammals called rodents that have super-strong front teeth. They use these teeth to gnaw trees and branches and use the wood to build their homes in the middle of a pond or slow-flowing river.

A beavers' home is called a lodge. It contains rooms, called chambers, where young beavers are kept safe from predators.

Beavers are good swimmers. They enter the lodge through tunnels underwater and can stay safe and warm in their home during long, cold winters.

#### TUNDRA

The land around the Arctic is called the tundra and it is famous for its snowy blizzards and blustery winds. It is a difficult place to live - unless you can stay snug inside your own super-thick fur coat. Musk exen have hair that almost touches their toes and they snuggle up next to each other to get the benefit of some buddy-body-warmth!



#### FORESTS

Tropical forests are packed with tall trees that bloom all year round, producing plenty of fruit for any animals that can reach it.

Orang-utans spend almost all of their lives in the branches, using their strong arms to climb from tree to tree, following the fruit as it ripens.

# DESERTS

Deserts are very dry habitats that experience extreme temperatures. Bactrian camels survive desert life by storing food and water as fat inside their two humps. They grow thick, shaggy fur for the icy winter, and shed it for the hot summer months.

# CAN YOU FIND?

Other animals like to camp out in a beavers' lodge, including water voles. Can you find one of these small, furry rodents with a long tail?

## CAVES

Many species of bat gather together in caves in big groups called colonies. They rest during the day by hanging upside-down from the cave ceiling and go hunting at night. Some caves can house more than five million bats!



# STAYING ALIVE

Fur is a very useful skin covering. Not only does it keep a mammal warm, and protect the soft skin beneath, it can also come in all sorts of colours and patterns. These colours, stripes, blotches and spots can be used to camouflage an animal, which means it can hide from both predators and prey.

# SHOW-OFFS

In snowy places, such as the Arctic and on mountain-tops, many mammals grow white fur to help them camouflage in the winter. In the summer, some of them grow brown or grey fur instead, to help them hide amongst rocks and plants instead.

# MASTERS OF SURVIVAL



## SCALES

The soft body of a Chinese pangolin is protected by a suit of armour, made of overlapping scales. Its belly and throat have no scales, but they are hidden when the pangolin rolls up into a ball, making it difficult to attack.



#### HORNS

African buffaloes are big, powerful beasts. If a sion attacks a herd of buffaloes, they form a circle around the youngest members of the herd and use their horns to defend themselves.

A buffalo's mighty horns can easily stab and slash a lion's skin.

#### SPINES

The spines of a porcupine are actually sharp, stiff hairs, called quills. The North American porcupine has 300,000 quills and each one has about 700 tiny barbs near its tip. The barbs grip into the flesh of an attacker, and making it very painful to retreat!



Tiny harvest mice make easy prey for birds, snakes and other mammals. They build nests from straw, raised above the ground where they can hide their babies from predators. The nest is the shape of a hollow ball and it's attached to reeds or tall stems of grass.



# POISON

Before a slew loris leaves her baby to search for food she licks them! She has special places on her elbows that poze a poison and she licks this poison and spreads it on her baby. It tastes toxic and smells bad, so predators think twice before attacking the youngster.

# CAN YOU FIND?

There are six different mammals hiding in this arctic scene - can you find them all?

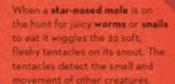
# FEEDING

One of the reasons that mammals are such a successful group of animals is because they have developed some incredible ways to find and eat all sorts of food - from ants to zebras!

### SENSES

Before an animal can eat, it has to find its food.

Mammals have superb senses such as sight,
hearing and smell that are perfect for
seeking different sources of food.



A tarsier's eyeballs are bigger than its brain! It hunts at night and it needs big eyes to detect as much light as possible in the dark rainforest. Large ears are perfect for 'catching' sounds and directing them to a mammal's eardrum, where the sound is turned into signals that pass to the brain. Fennec foxes use their huge ears to listen for the sounds of animals moving beneath the sand.



As a dolphin swims, it makes clicking sounds that travel through water and hit the bodies of fish nearby. The sounds bounce back to the dolphin and give it information about the size and position of the fish. This is called echolocation and it's such a brilliant system for finding food that many bats use it too!

## TEETH

Mammals that eat a meat-based diet are called carnivores and their teeth need to be good at stabbing, tearing and slicing. Herbivores are animals that eat plants and they need teeth that are the perfect shape for snipping leaves and stems and grinding them into a mush that can be easily swallowed.

Tigers have long, dagger-like teeth for stabbing. They are called fangs, or canine teeth, and can be as long as an adult's finger! They also have carnassial teeth on the side of their jaws that fit together like scissor blades to cut chunks of meat.

Most whales have cone-

shaped teeth for catching

fish and squid, but baleen

whales have a sieve-like sheets called baleen plates instead. When the whale gulps a mouthful of water, the baleen plates work like a sieve to trap small

creatures, such as shrimp.

Sheep mostly eat grass so they need small, sharp lacksors at the front of their jaw for snipping these tough plants. Large grinding teeth at the back are called molars. They have ridges that help grind up the grass.

# NO TEETH

Most mammals have teeth, but anteaters, duck-billed platypuses and some whales are toothless.

of smell to sniff out ant nests and termite mounds. They rip them open with their long, curved claws and then scoops up the insects using a very long, sticky tongue. They can devour 35,000 bugs in one day!

Anteaters use their superb sense



One of the world's strangest mammals is the duck-billed platypus. It has a beak-shaped snout that can sense the electrical signals given off by its prey in water.



# MAMMAL PARENTS

Most mammal mothers keep their young inside their bodies while they grow all except for two very strange groups: monotremes lay eggs and marsupials raise their babies in pouches.

# EGG-LAYING MAMMALS

There are just five species of mammal that lay eggs: four species of echidna and just one species of duck-billed platypus.





Echidnas can grow up to 100 centimetres long. They have short legs, a long shout and tiny eyes and they have spines growing between strands of heir. Some echidnas lay a single egg in a burrow, but others keep their egg in a pouch.

#### MAMMALS WITH POUCHES

There are about 300 species of marsupial and, like the monotremes, many of them live in or around Australia. Koalas, kangaroo, quolls, wombats and oppossums are all types of marsupial.

A kangaroo joey stays in its mother's pouch for several months as it grows, although it may climb out from time to time to stretch its legs!

Mother kangaroos give birth to tiny babies, called joeys, which are often no bigger than a jellybean. A joey must make its own way to the mother's pouch, where it latches on to a teat and suckles on its mother's milk.



Grey wolves live in large family groups called packs. The leaders of the pack are called the alpha female and alpha male.

At seven months old, the playful pups are allowed to join the pack on hunting trips. They watch the adults to learn how to find, chase and kill prey.

When the pups are four weeks old, they are brave enough to leave the den and explore. They now have teeth and can start to eat meat.

> The whole pack helps to care for the growing pups and they even babysit when the alpha wolves go hunting.

In Spring, the alpha female chooses a male to mate with. The two wolves nuzzle each other, touching noses and grooming each other's fur. The wolves form a close bond that lasts for a lifetime.

The alpha female is pregnant for about 60 days and she uses this time to dig a den where she will hide her pups. During the pregnancy, four to six pups grow inside their mother's body, in a special place called a uterus.

Pups are born blind and deaf, but they have a good sense of smell. The mother feeds them with milk but other females in the pack can also make milk and take over feeding when the mother wants a rest.

# MALI ELEPHANTS

In the hot desert lands of Mali in Africa, elephant families set out on an epic journey each year in search of food and water. Only by working as a team and taking care of each other, can these huge mammals survive in this harshest of habitats.

A female elephant, called the matriarch, leads the herd. She is old and can remember the route she must take, and she knows how to search for water, acanning the sky for signs of rain clouds.

sephants produce lots of poo, or **dung** ungbeetles collect the dung, roll it into balls and lay their eggs in it. When the

CAN YOU FIND?



The grey clouds on the horizon tell the elephants that rains are falling in the south, and they begin the next stage of their trek. Their traditional route takes them through villages that have been built in the area, so

# MAMMALS AND PEOPLE

The lives of mammals have been intertwined with humans since the earliest times. For many thousands of years, people have hunted mammals for meat and used their skins and furs. Cattle, camels, llamas and horses have been used to plough the land or carry people and their goods far across the globe.



#### PEOPLE AND PETS

Wild cats may have been tamed, or domesticated, more than 10,000 years ago! The first dogs lived among humans even earlier, when wolves were used on hunting trips during the last Ice Age. Today, cats and dogs are still much-loved companions.



# MAMMALS AT WORK

Some mammals have been trained to do important tasks. Assistance dogs help people who cannot see or hear, or who have difficulties with moving. Life-saving rats have been trained to sniff out bombs in war zones and mice have learned how to find dangerous drugs that pass through airports.



# MYTHS AND LEGENDS

All over the world, people have put mammals at the centre of their stories. These include flying herses, such as Pegasus from the Greek myths. Some world religions revere mammals such as cattle, bears and elephants, and honour them in festivals and ceremonies.

# MAMMALS IN DANGER

Mammals are an essential part of the natural world, but they are in greater danger than ever before. In modern times, 85 species of mammal have already gone **extinct**, and nearly a quarter of all mammal species are at risk of going extinct - which means dying out forever.



Cotton-top tamarins live in the forests of South America, but is thought only 2,000 of them still survive there. In the past, they were sold as pets, and their habitat has been removed to build homes for people instead. Scientists and local people are now working hard to save them.

The shrinking jungles of Sumatra, an island in Southeast Asia, are home to fewer than 80 rhinos. Their forests have been cut down to make way for farms and they are hunted for their horns. The last Sumatran rhinos are now kept safe and protected from hunters.

# **HUMANS ARE MAMMALS TOO**

Humans belong to the group of mammals called **primates**, which includes **monkeys** and **apes**. We are similar to our primate cousins in many ways!



Like humans, monkeys and apes have hands and use them to grip, hold, throw and pick up small things. Chimps poke sticks into termite mounds then pull them out to lick the bugs. Human childhood is a time of play and learning. The childhood of an orang-utan lasts for about seven years, and during this time the mother cares for her youngster and teaches it how to find the best fruits to eat.



Primates are experts at communicating. They use sounds to talk, but they also use their faces to show how they are feeling. **Chimps** pout and whimper when they are feeling unhappy and when they are happy they make a special smile, with their lower teeth showing.

