

ILLUSTRATED ENCYCLOPEDIA



ANIMALS



More than 250 keywords

ILLUSTRATED ENCYCLOPEDIA

ANIMALS



ILLUSTRATED ENCYCLOPEDIA

ANIMALS

First published in 2012 by Orpheus Books Ltd.,
6 Church Green, Witney, Oxfordshire, OX28 4AW, England
www.orpheusbooks.com

Copyright ©2012 Orpheus Books Ltd.

Created and produced by Nicholas Harris, Sarah Hartley,
Katie Sexton, Ruth Symons and Erica Williams, Orpheus Books Ltd.

Text Ruth Symons

Illustrated by Susanna Addario, Mike Atkinson, Graham Austin, Andrew Beckett,
Martin Camm, Robin Carter, Stuart Carter, Jim Channell, Ferruccio Cucchiarini,
Peter Dennis, Fiammetta Dogi, Malcolm Ellis, Elisabetta Ferrero, Giuliano Fornari,
Sauro Giampaio, Andrea Ricciardi di Gaudesi, Ray Grinaway, Philip Hood,
Ian Jackson, Mike Lowe, Simon Mendez, Steve Noon, Nicki Palin, Bryan Poole,
Alessandro Rabatti, Eric Robson, Claudia Saraceni, Peter David Scott, Ivan Stalio,
Colin Woolf and David Wright

Consultant Chris Jarvis, Oxford University Museum of Natural History

All rights reserved. No part of this book may be reproduced, stored in a retrieval
system, or transmitted in any form or by any means, electronic, mechanical,
photocopying, recording or otherwise, without the prior written permission of
the copyright owner.

ISBN 978 1 7418 3764 8

Printed and bound in Singapore

Photograph on page 9: Copyright ©2010 WitR
Used under licence from Shutterstock.com

Photograph on page 14: Copyright ©2010 Pakhnyushcha
Used under licence from Shutterstock.com



 Orpheus

CONTENTS

ANIMAL KINGDOM 6

AMPHIBIANS 8

CROCODILES, TURTLES & TORTOISES 10

LIZARDS & SNAKES 12



BIRDS 14

BIRD FAMILIES 16

PERCHING BIRDS 18

MARSUPIALS & MONOTREMES 20



RODENTS & INSECTIVORES 22

PRIMATES 24

UNGULATES 26

CARNIVORES 28

INDEX 30



ABOUT THIS BOOK

Each double page contains a brief introduction, explaining the general subject, followed by key words arranged in alphabetical order. To look up a specific word, turn to the index at the back of this book: this will tell you which page to go to. If you want to learn more about a subject, take a look at the factfile, or follow the arrows to read related entries.



INTRODUCTION
This explains the general subject and provides some basic knowledge.

ARROWS
These arrows show you where to look up other words mentioned in the entry. For example, (➔ 26) tells you to go forward to page 26 and (➔ 6) tells you to turn back to page 6.

FACTFILE
The factfile provides extra information on the subject. Facts are presented in easy to read bullet points.

MARSUPIALS & MONOTREMES

Monotremes and marsupials are mammals that do not give birth to fully developed young. The young of monotremes are born inside soft-shelled eggs. They hatch after a few days and the young are suckled until they have fully developed. The young of marsupials are born at a very early stage, and then continue to develop while clinging to their mother's body inside a pouch. Monotremes are found only in Australia and the surrounding islands. Most marsupials live in Australia, except for the opossums, which are native to America.

Bandicoot A small, rat-like marsupial with a long snout and long, strong claws for digging. It carries its young in a backwards-facing pouch.

Cuscus A possum with monkey-like features. It is an agile tree-dweller. Females have pouches, used to carry their young, one born at a time.

Echidna A monotreme, also known as the spiny anteater. It has a long, thin snout and powerful claws for digging. Its body is covered in fur and sharp spines. Echidnas feed on ants or worms, crushing them between their tongues and the roofs of their mouths. They have a pouch that holds their young.

Dunnart A small, mouse-like marsupial with long back feet and a long tail.

Echidna A monotreme, also known as the spiny anteater. It has a long, thin snout and powerful claws for digging. Its body is covered in fur and sharp spines. Echidnas feed on ants or worms, crushing them between their tongues and the roofs of their mouths. They have a pouch that holds their young.

Koala A marsupial that lives in trees, feeding on eucalyptus leaves and shoots. It has a large nose and ears. Koalas use their grasping hands to cling on to tree trunks and to their mothers' backs. Koalas spend three-quarters of their day sleeping, stirring only as dusk falls.

Two female kangaroos with their joey.

Honey possum A small, marsupial with a long tail and a pointed snout, used to probe into flowers for nectar and pollen. It is one of the few nectar-feeding mammals.

Joey A young marsupial. When it is born, it is tiny, blind and hairless. Its limbs are not properly formed but it crawls through its mother's fur to her nipples. After several months, it leaves the pouch, but may return there to sleep for up to a year.

Kangaroo A large marsupial that moves by bounding on its long hind legs. Females have forward-facing pouches where their young develop. Kangaroos live in groups, called "mobs", on open, grassy plains.

Dasyurids An order of small, carnivorous marsupials, that includes quolls, dunnarts, numbats and Tasmanian devils.

Diprotodonts An order of marsupials that includes kangaroos, wallabies, possums, koalas and wombats. They have large incisors in their lower jaw and the second and third toes of their hind feet are joined together. They are mostly herbivorous.

Newborn kangaroo joey suckling.

Koala A marsupial that lives in trees, feeding on eucalyptus leaves and shoots. It has a large nose and ears. Koalas use their grasping hands to cling on to tree trunks and to their mothers' backs. Koalas spend three-quarters of their day sleeping, stirring only as dusk falls.

An echidna (below) and its soft-shelled egg (right).

Marsupial mole A marsupial that closely resembles true moles (➔ 31) in appearance and behaviour. Marsupial moles tunnel underground, hunting for insects and worms. Females have backwards-facing pouches and only two nipples, meaning they can only have two young at a time.

Numbat A marsupial also known as the banded anteater. It has stripes on its back, dark markings around its eyes and a bushy tail. It feeds almost entirely on termites.

Opossum An American marsupial, with a long snout, large canine teeth and a long, hairless tail. Opossums are often called possums, but belong to a separate family to the "true" Australian marsupials. Most species live in trees, are omnivorous and have pouches. When threatened, they may pretend to be dead or "play possum".

Shrew opossum A small, shrew-like opossum from the Andes Mountains. It feeds at night, hunting worms and other invertebrates.

Tasmanian devil The largest carnivorous marsupial, from the Australian island of Tasmania. It has a stocky body and dark fur with white markings on its chest. It is usually a scavenger but can also kill small animals.

Platypus A monotreme that lives in rivers, lakes and creeks. It has webbed feet and a duck-like bill, used to probe for worms and insect larvae in the mud. Males have spurs on their legs that can eject venom, which is strong enough to kill a dog.

Possum A nocturnal, omnivorous marsupial. Most possums live in trees and have several young at a time. The female carries her young in a pouch for several months, before they crawl out and cling to her back for several more.

Quoll A carnivorous marsupial, also known as a "native cat". Quolls have pink noses and white spots on their backs. Females only develop pouches during the mating season.

Virginia opossum The only marsupial found in North America and the largest opossum, growing up to 1 m long. It is often found near towns, rummaging for food in bins.

Wallaby A small, stocky marsupial. Wallabies have thicker fur than their relatives the kangaroos, and live in a wider variety of habitats, including rocky terrain, grassland and forests.

Wombat An Australian marsupial with a short tail and legs. Wombats are powerful diggers and live in underground burrows. Their pouches are backwards-facing to stop soil from getting inside them.

FACTFILE

- ★ For millions of years, Australia was isolated from the rest of the world. On other continents marsupials lost out in competition for food with placental mammals whose young develop inside the mother's womb. With the exception of the opossums, they died out, but in Australia, they had no placental rivals, so they thrived.
- ★ The smallest marsupial is the long-tailed planigale, with a body length of 6.6 cm and tail length of around 5 cm.
- ★ The largest marsupial is the red kangaroo. Large males can grow up to 2 m tall.

A wombat

BOLD WORDS
These highlight useful words that do not have their own entry.

KEY WORDS AND ENTRIES
Key words are arranged alphabetically across each double page. Each entry provides a short explanation of what the key word means.

PAGE NUMBER
Page numbers are easy to find at the side of the page.

ANIMAL KINGDOM

An animal is a living thing that can sense its surroundings and move independently around its environment. It has a body made of many microscopic cells and gets its energy and nutrients by eating other living things, such as plants, fungus, bacteria or other animals. There are more animal species in the world than any other type of living thing. Around two million are known to us, though scientists estimate there are up to 30 million species yet to be discovered.

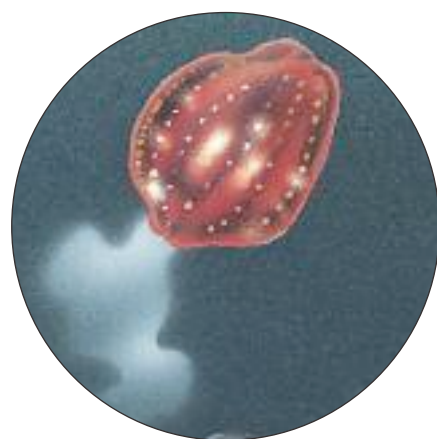
Arboreal animals Animals that live in the branches of trees.

Amphibians A class of cold-blooded, vertebrate animals that return to water to breed. The young are aquatic and breathe using gills. Most adults develop lungs.

Aquatic An animal that spends much of its life in water.

Birds Warm-blooded, vertebrate animals with four limbs, the front two of which are adapted into wings. Birds have a toothless beak and a covering of feathers.

Browsers Animals that feed on leaves and twigs from trees and bushes.



Red comb jelly: comb jellies are a phylum of animal.

Camouflage The means by which an animal can escape the notice of predators or prey by using the colours or patterns of its body to blend into its surroundings.

Carnivore An animal that feeds on other animals.

Carrion The remains of dead animals.

Cold-blooded Animals that are cold-blooded are only ever the same temperature as their surroundings. They depend on heat from the sun in order to have enough warmth and energy to move about.

Fish Cold-blooded, vertebrate animals that live in water and breathe using gills. There are two main groups: cartilaginous fish, such as sharks and rays; and bony fish.

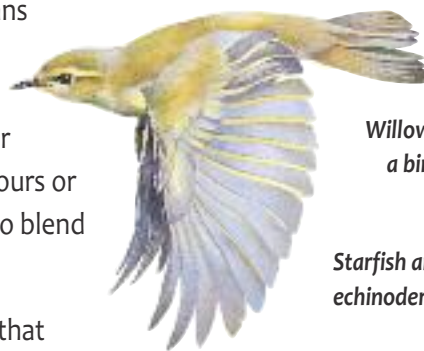
Herbivore An animal that feeds only on plant material.

Hibernation The process whereby some animals spend the winter in a state of reduced activity. Breathing and other body systems slow down, conserving energy. Animals such as dormice and some frogs, snakes and tortoises hibernate.

Grazer An animals that feeds on grasses.

Invertebrates Animals without backbones. They include insects, arachnids, myriapods, worms, crustaceans, echinoderms, molluscs, sponges, cnidarians and comb jellies.

A SELECTION OF ANIMAL CLASSES AND PHYLA



Willow warbler, a bird (left)



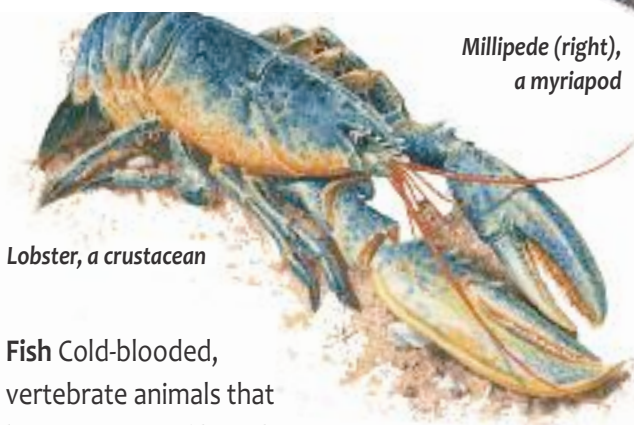
Starfish an echinoderm



Japanese pygmy angelfish (above)



Millipede (right), a myriapod



Lobster, a crustacean



Jellyfish, a cnidarian



Octopus (below), a mollusc



Bird-eating spider, an arachnid

Mammals A class of vertebrate, warm-blooded animals that mostly give birth to live young and feed them with milk. Most mammals have four limbs and a covering of fur, although **sea mammals**, such as seals, whales and dolphins, have little or no hair and some have lost their back two limbs.

Dolphin (right), an aquatic mammal



Chameleon (below), a reptile



Octopus (below), a mollusc

Ladybird (right), an insect



Migration The movement of a group of animals from one place to another at a certain time of the year, to breed or feed.

Nocturnal Active during the night and inactive during the day.

Omnivore An animal that eats both plants and other animals.

Predator An animal that obtains its food by hunting and killing other animals.

Prey An animal that is killed and eaten by predators.

Mammary gland An organ found on female mammals. It produces nutritious milk for their young after they are born. As the young suckle (feed on milk) they grow larger and stronger, without wasting energy searching for their own food.

Reptiles A class of cold-blooded vertebrate animals with scaly skin. Reptiles include snakes, lizards, turtles and crocodiles. Most reptiles lay eggs but some give birth to live young.

Frog, an amphibian

Earthworm, a segmented worm

ANIMAL CLASSIFICATION

Living things are organized into groups of increasing size, which show how closely related they are to one another. Here we see how they apply to the lion:

SPECIES: The smallest grouping of animals. All lions have the same unique body structure and can breed together.

GENUS: A group of very similar species. The genus *Panthera* contains four species: the lion, the tiger, the jaguar and the leopard.

FAMILY: The genus *Panthera* belongs to the cat family. All cats have similar bodies and feed only on meat. However, they vary in size, habitat and hunting behaviour.

ORDER: The cat family belongs to the carnivore order. All carnivores have strong jaws and sharp teeth and most are hunters.

CLASS: The carnivore order belongs to the mammal class. All mammals are warm-blooded and suckle their young on milk.

PHYLUM: Mammals belong to a larger group called the chordates, which includes all vertebrate animals.

KINGDOM: The chordate phylum is one of over 30 phyla in the animal kingdom, to which all animals belong.

Scavengers Animals that feed on the remains of food killed or collected by other animals.

Species A group of animals that are similar in body structure. Animals of the same species are able to breed together and produce young that can also breed.

Vertebrates Animals with backbones. Mammals, birds, reptiles, amphibians and fish are all vertebrates. Vertebrates are also known by their scientific phylum, chordates.

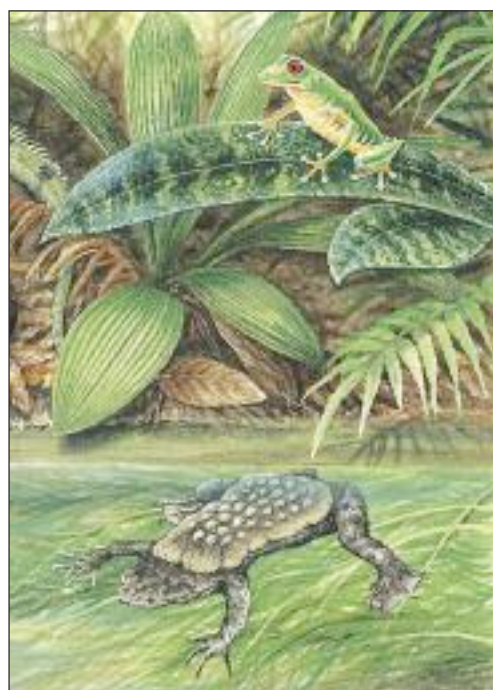
Warm-blooded Warm-blooded animals maintain their internal temperature independently of their surroundings. They do this by "burning" fuel (food) for energy.

AMPHIBIANS

Amphibians are a class of cold-blooded, carnivorous animals that includes frogs, toads, salamanders and caecilians. The word amphibian means “double life”. Most amphibians spend the first part of their lives underwater, breathing through gills. Their adult lives are spent on land, breathing through lungs. They return to the water to lay eggs. Most adults can also breathe through their skin. They have to stay moist to do this, so they live in damp, cool conditions. Many species can produce poisonous substances from their skins. Bright markings warn predators that they taste bad.

Axolotl An aquatic salamander from Mexico. As an adult it retains many larval features, such as its feathery gills, but it can still reproduce.

Bullfrog A large frog from North America. It grows up to 20 cm long and eats almost anything, including birds and mice. It is known for its booming mating call.



A tree frog (top) and a Surinam toad (above), which carries its eggs on its back until they hatch.



Fire-bellied toad

Caecilian A long, snake-like amphibian with no limbs. Caecilians have small, almost sightless, eyes and live underground in tropical regions.

Congo eel A North American salamander with a long thin body and four tiny, useless legs. It lives at the bottom of streams, feeding on frogs, fish and snakes.



Japanese giant salamander

Japanese giant salamander

The world's largest amphibian.

It can grow to lengths of up to 1.5 m. It lives in streams where water supports the great weight of its body. It sucks up fish and worms with its large, gaping mouth.

Darwin's frog A small South American frog with a pointed snout. It stores its eggs in a sac of skin in its throat until they mature and jump out as miniature adults.

Fire-bellied toad An Asian toad with a brightly coloured belly. If threatened, it twists to show its belly as a warning that it tastes bad. This action, called the **unken reflex**, is also used by some salamanders.

Fire salamander A European salamander with black and yellow markings. It lives in cool forests or mountainous regions.

THE LIFE CYCLE OF A FROG

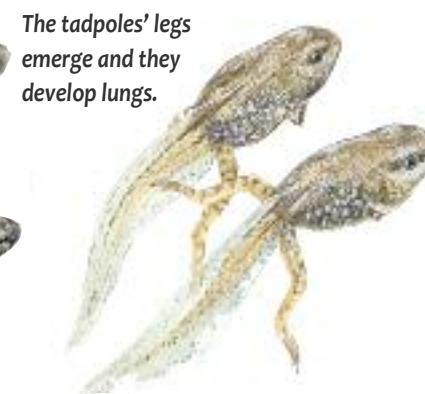


Frogspawn

Tadpoles hatch from the frogspawn



The tadpoles breathe through gills and use their tails to swim.



The tadpoles' legs emerge and they develop lungs.



The tadpoles come to the surface and their front limbs appear (above). They lose their tails, their eyes grow bigger and their mouths become wider. They are now adult frogs (right).

Flying frog A frog with large, webbed feet that help it glide between trees. Some species can glide more than 15 m.

Frog A short, tail-less amphibian with long hind legs and smooth skin. Frogs live on land, in trees or in fresh water. They can make huge leaps and swim quickly.

Gills The breathing organs of water creatures. As water passes in through the mouth and out over the gills, oxygen is filtered out by blood vessels. Amphibian larvae have flap-like, external gills.

Larva The young of an animal before it goes through metamorphosis. Larvae look very different to adults of the same species. For example, the larvae of many amphibians have gills or tails, which are lost when they become adults.

Metamorphosis The process whereby some animals change their bodies and behaviour between the young (larval) and adult states of their life.

Midwife toad A dull-coloured toad from Europe and North Africa. The male wraps the female's eggs around his legs to protect them until they are ready to hatch.



An adult male great crested newt

Mole salamander A thick-bodied, colourful North American salamander with colourful markings. Adults live in burrows, returning to the water only to lay their eggs.

Mudpuppy An aquatic North American salamander that keeps its gills as an adult. Mudpuppies are also known as **waterdogs** because adults have a “barking” call.



Flying frog

Newt A type of salamander with a long, flattened tail. Many species are brightly-coloured to warn that they are toxic.

Olm A large, aquatic salamander that lives in European caves. It has pale skin, blind eyes and flap-like, external gills.

Poison-arrow frog A frog from the rainforests of Central and South America that secretes a powerful poison. This is used by rainforest people to coat the tips of their darts and arrows for hunting.

Salamander An amphibian with a long body and tail. Some salamanders are fully aquatic, while others live on land and return to the water only to lay their eggs.

Siren An aquatic salamander with small front legs and no back legs.

Spawn The jelly-like eggs of aquatic animals, such as frogs and toads. Many frogs and toads leave their eggs to hatch on their own. Others carry them on their backs or in their mouths to protect them.

Tadpole The young of a frog or toad. At first, tadpoles breathe through gills and use their tails to swim. Gradually, their legs emerge, they develop lungs and finally they lose their tails.

FACTFILE

★ Amphibians were the first vertebrates to live on land more than 360 million years ago. They evolved from fish that had moved on to the land and developed lungs. Early amphibians looked similar to salamanders.

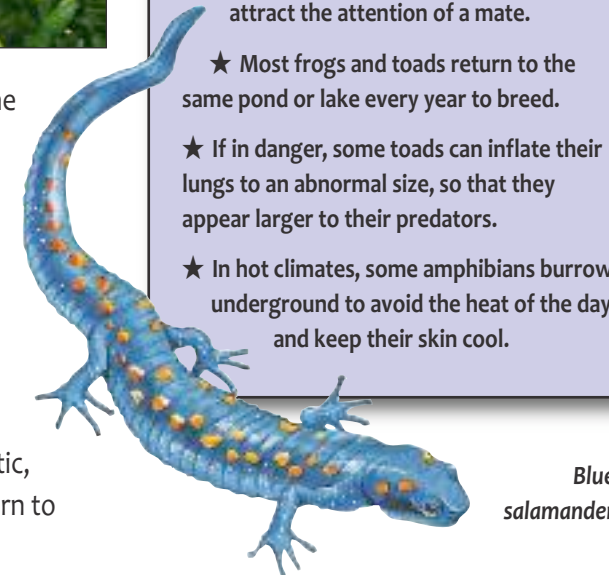
★ The smallest amphibian is the Brazilian gold frog, which is only 9.8 mm long.

★ Many amphibians become more brightly coloured in their breeding season in order to attract the attention of a mate.

★ Most frogs and toads return to the same pond or lake every year to breed.

★ If in danger, some toads can inflate their lungs to an abnormal size, so that they appear larger to their predators.

★ In hot climates, some amphibians burrow underground to avoid the heat of the day and keep their skin cool.



Blue salamander

Toad A short, tail-less amphibian with a fat body and lumpy skin. Toads live mostly on land. They have shorter legs than frogs and crawl or hop rather than leap.

Tree frog A frog that lives and hunts in trees using its sticky toe pads to give it grip. Most species leave the trees to lay their eggs in pools or rivers, but some lay their eggs on leaves overhanging water.

Vocal sac An inflatable bag of skin that male frogs use to amplify their calls. Calls are used to attract mates or ward off rivals.

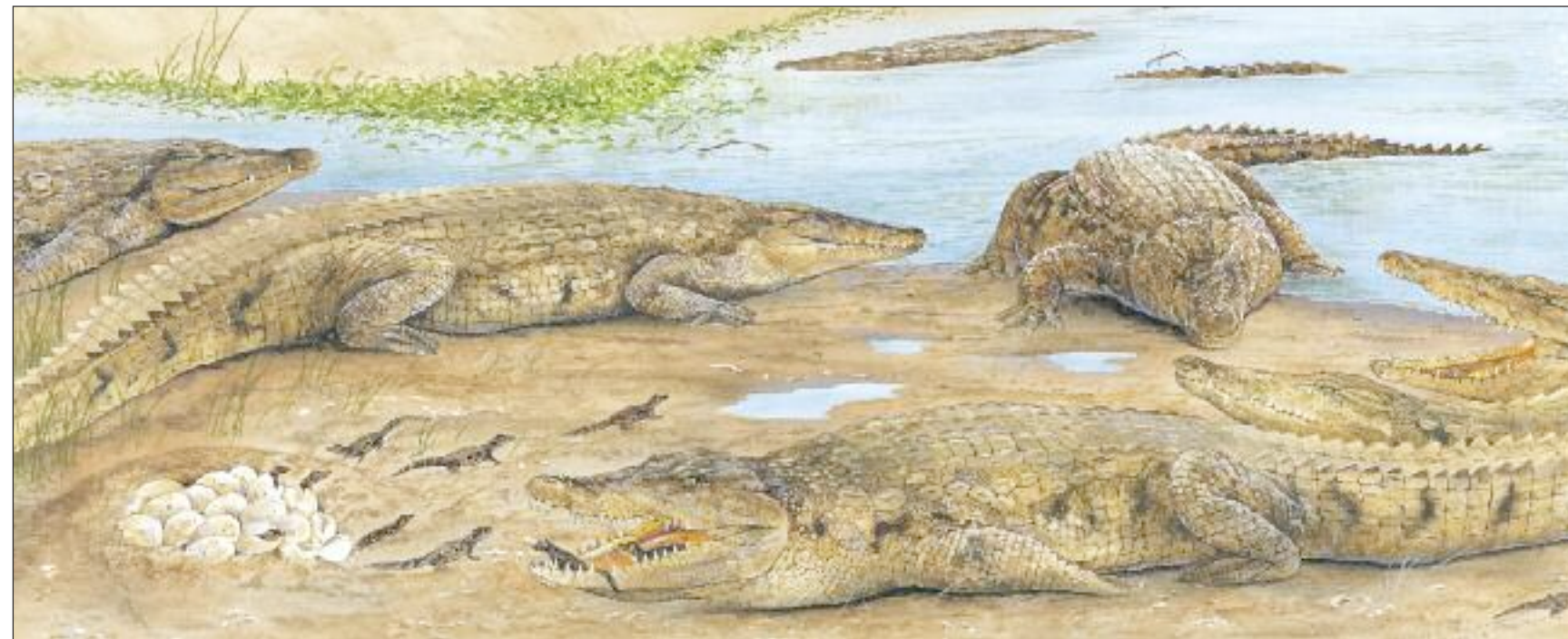


TURTLES & CROCODILES

Turtles are an order of reptiles that have hard, protective shells and beak-like mouths. The turtle superorder (a grouping larger than an order), called the chelonians, includes freshwater turtles, sea turtles and land-dwelling tortoises. Crocodiles and their relatives, alligators and gharials, are meat-eating reptiles that spend much of their time in the water. All turtles and crocodiles lay their eggs on land.

Alligator A large reptile related to crocodiles. Alligators have wider snouts than other crocodylians. The two main species of alligator are the **American alligator**, which lives in the swamps of southeast North America, and the rare **Chinese alligator**, which lives in the Yangtze River valley. Alligators can grow up to 6 m long.

Caiman A relative of the alligator from Central and South America that has heavily armoured undersides. Caimans are usually smaller than alligators but the **black caiman** can grow up to 5 m long.



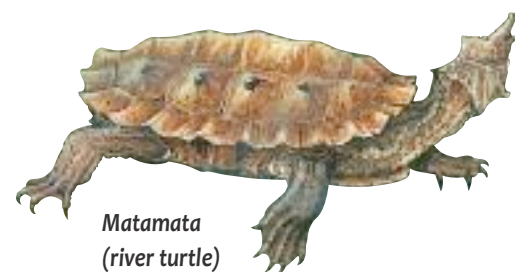
A family of crocodiles warming themselves in the sun. This raises their body temperature and give them energy to move around and hunt.



A crocodile hatching

Carapace The upper part of the shell of a turtle. It is joined to the animal's ribs and backbone and linked to the plastron by bony bridges at the side of the body. Most turtles have a flat, streamlined carapace, suited to swimming. Tortoises have an arched carapace, covered with horny scales.

Crocodile An aquatic, predatory reptile with a long jaw and bony plates of armour on the top of its body. One pair of teeth in the lower jaw is always visible even when a crocodile's mouth is closed. Crocodiles mostly live in tropical rivers, and lakes. The largest species are the **Nile crocodile** and the **saltwater crocodile**, both of which grow up to 7 m long. They can easily bring down large prey such as antelope, which they ambush at the water's edge, dragging them underwater to drown.

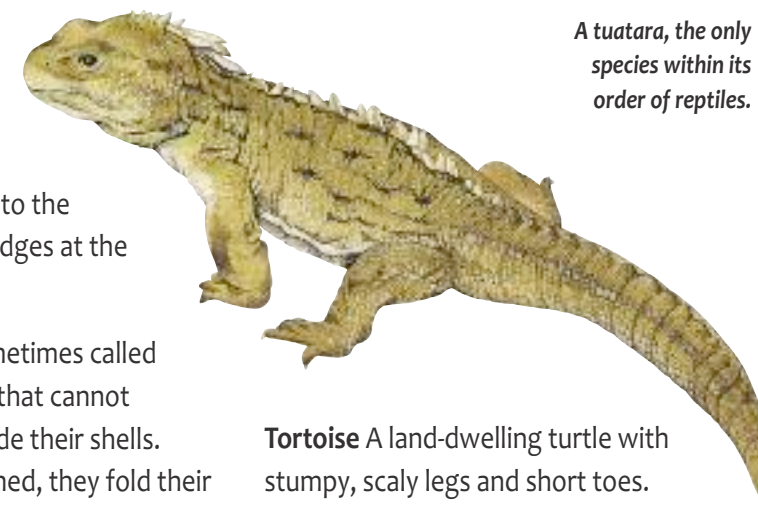


Matamata (river turtle)

Crocodylians The order of reptiles that includes crocodiles, alligators, gharials and caimans. They are aquatic, predatory reptiles with long jaws and tails, short limbs and sharp teeth. Because their eyes and nostrils are on top of their heads, they can hide with their bodies almost completely underwater. Most live in rivers and lakes, feeding on a range of prey, including fish, birds and mammals.

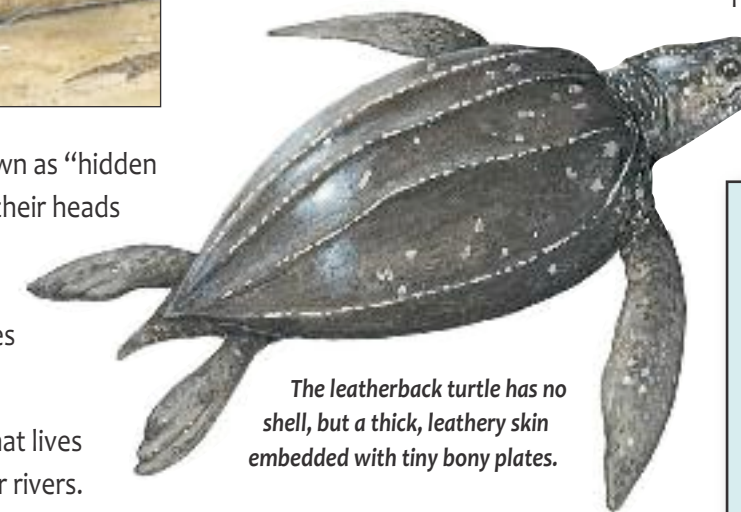
Plastron The flat, lower part of the shell of a turtle. It is joined to the animal's breastbone and linked to the upper shell by bony bridges at the side of the body.

Pleurodira Turtles, sometimes called "side-necked turtles", that cannot retract their heads inside their shells. Instead, when threatened, they fold their necks sideways to hide their heads under a lip of shell.



A tuatara, the only species within its order of reptiles.

Tortoise A land-dwelling turtle with stumpy, scaly legs and short toes. Tortoises move slowly, relying on their shells to protect them from predators. They are mainly plant-eaters. **Giant tortoises** can measure over 1 m long and live for around 200 years.



The leatherback turtle has no shell, but a thick, leathery skin embedded with tiny bony plates.

Cryptodira Turtles, also known as "hidden neck" turtles, that can hide their heads inside their shells. They include most freshwater turtles, sea turtles and all tortoises.

Freshwater turtle A turtle that lives in freshwater ponds, lakes or rivers. Freshwater turtles, sometimes called **terrapins**, include **soft-shelled turtles**, **diamondback terrapins**, **painted turtles**, and the aggressive **snapping turtles**.

Gharial An aquatic reptile also known as the **gavial**. It has a long, narrow snout, lined with needle-like teeth and lives in rivers of the Indian subcontinent, feeding only on fish. It can reach lengths of up to 7 m long and is a very agile swimmer.

Sea turtle An ocean-dwelling turtle. There are seven species: the **flatback**, **green**, **hawksbill**, **Kemp's ridley**, **olive ridley**, **leatherback** and **loggerhead turtles**. Most feed on jellyfish, fish and crustaceans, except for the herbivorous green turtle. Turtles can hold their breath underwater for over three hours when asleep. The largest sea turtle is the 3-m-long leatherback turtle.



Giant tortoise

FACTFILE

★ Only large crocodiles and alligators pose a threat to humans. The Nile crocodile is responsible for the most attacks on humans. It kills hundreds of people every year, mostly in poor parts of Africa, where people depend on the river for their water supply. The saltwater crocodile is just as dangerous but less frequently encountered.

★ A 5-m-long crocodile can be almost completely hidden in less than 30 cm of murky water.

★ Reptiles require less food than warm-blooded animals. They can also conserve energy by keeping cool and staying still. This means that they can survive easily in harsh environments. In extreme conditions, a crocodile can go as long as two years without eating.

Tuatara A lizard-shaped reptile from New Zealand. It is not related to lizards, but is the only member of an order of reptiles that lived on Earth even before the dinosaurs. It is green with a crest of skin down its back that can be raised as a threat. The tuatara feeds at night, hunting insects, worms and small lizards. It may live for over 120 years.

LIZARDS & SNAKES

Lizards and snakes belong to an order of reptiles called the squamates, meaning “scaled”. Almost all are carnivores and most lay eggs, but some, such as boas, give birth to live young. Lizards are mostly small reptiles with four legs and a tail. Some are burrowing animals, while many live in trees. Snakes have long, narrow bodies and tails, but no limbs. Because they have many bones, strong muscles and flexible joints, they can slither at speed, burrow or swim. They have loose, hinged jaws that enable them to swallow large prey whole.

Agamid A lizard with sturdy legs, also known as the **dragon lizard**. Males are often brightly-coloured. Agamids include **bearded dragons** and **frilled lizards**.



The common gecko from Southeast Asia.

Blind snake A small, tropical, burrowing snake. Blind snakes have tiny eyes and rounded heads for pushing through soil.

Boa A constrictor from Central and South America that gives birth to live young. Boas include the 4-m-long **boa constrictor** and the **anaconda**, which grows up to 8.5 m long.

Chameleon A lizard with a prehensile tail (p. 25) and grasping feet. Chameleons have long, sticky tongues for catching insects and change colour to match their surroundings.



The red-tailed racer snake is a type of constrictor.

Cobra A venomous snake with a hood of skin behind its head. Cobras live in Africa and Asia. They have two fangs at the front of their mouths, used to inject a venom that paralyzes, then kills their prey. The **king cobra** is the largest venomous snake, growing up to 5.5 m long.



Gila monster

Constrictor A snake that kills its prey by coiling around it and suffocating it. Every time the prey exhales, the snake tightens its coils, until the victim cannot breathe. Most constrictors are well-camouflaged.

Colubrid A snake with a single row of large scales on its belly. Most, but not all, species are non-venomous. Around two-thirds of all snakes are colubrids. They include **garter snakes**, **milk snakes** and **tree snakes**.



The Komodo dragon is found on several Indonesian islands.

Coral snake A slender, venomous snake with red, black, yellow or white stripes. These warn other animals it is dangerous.

Flying lizard A lizard from Southeast Asia, with flaps of skin along its body that act as parachutes, helping it to glide between trees. The flaps are supported by rib extensions, which lie flat when not in use.

Gecko A small, thick-bodied lizard. Geckos have hairs on their toes, which enable them to grip on to smooth surfaces. They are the only lizards that can call to one another.

Gila monster A venomous lizard from the deserts of North America. It is slow-moving and feeds mainly on eggs. It stores fat deposits in its large tail.

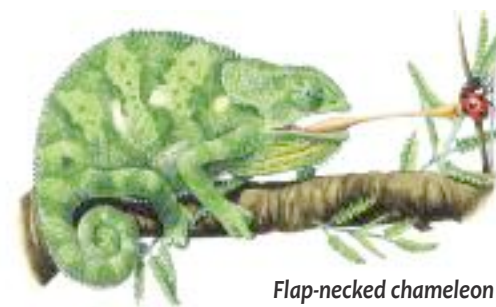
Iguana A herbivorous lizard from the tropics. The **green iguana** is a tree-dwelling lizard with a crest of spines down its back. The **marine iguana** is the only sea-dwelling species of lizard. Other iguanas include **anoles**, **basilisks** and **horned lizards**.

Legless lizard A limbless lizard such as a **slow worm** or **glass lizard**. The eyelids and ear openings of legless lizards distinguish them from snakes.

Mamba A fast, venomous snake from Africa. Mambas can move at up to 20 km/h. The most feared species is the **black mamba**, whose venom can kill a human in 20 minutes. It has a grey body and black mouth. The other species are all green.

Monitor lizard A large, carnivorous lizard. Monitor lizards includes the **water monitor**, **crocodile monitor** and the 3-m-long, venomous **Komodo dragon**, the largest lizard in the world. It mostly eats carrion but can also ambush and kill large prey.

Python A constrictor with a heat-sensitive organ on its head, used to find prey. The **reticulated python**, which grows up to 10 m long, is the longest snake in the world.



Flap-necked chameleon

Rattlesnake A venomous American viper, with a rattle in its tail. When agitated, it vibrates its tail to make a warning sound. Most species have diamond-patterned markings and all give birth to live young.

Sea snake A snake that lives in the ocean. There are around 60 species of sea snake, all of which are venomous. They have flattened tails to help them swim. Many species are striped.



A boa constrictor killing a coypu.

Shieldtail snake A burrowing snake from Asia with a large scale at the end of its tail. All shieldtail species are non-venomous.

Skink A small lizard with a long body and short limbs. Some species have no limbs at all. Many skinks are good burrowers.

Venom A poisonous substance found in the bodies of some animals. Venomous snakes have venom glands in their heads. Venom is injected through their fangs in order to kill prey or defend themselves.

Viper A venomous snake with long, hollow fangs that fold back inside its mouth until it strikes. **Pit vipers**, such as rattlesnakes, have heat-sensitive organs, used to locate prey. **Old world vipers**, such as puff adders, do not.

Wall lizard A lizard from Europe, Asia and Africa with a slim body, long tail and large scales on its head and belly. Some species give birth to live young.

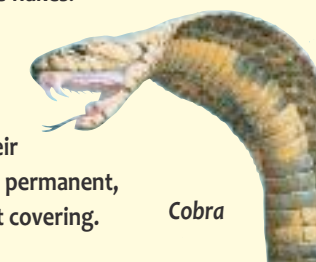
FACTFILE

★ Snakes are descended from four-legged creatures. Some, such as pythons, have the remains of hind legs in their skeletons. There show as small bumps on their bodies.

★ Lizards and snakes collect tastes from the air or ground by flicking out their tongues.

★ Snakes shed the outer layer of their skin in one piece, up to six times a year. This replaces old, worn out skin and helps to remove parasites. Most lizards shed their skin in large flakes.

★ Snakes have no eyelids. Instead, their eyes have a permanent, transparent covering.



Cobra

Whiptail lizard A narrow lizard with a long tail. Whiptail lizards are the American equivalent of the wall lizards.



KEY

- 1 Green anole
- 2 Anaconda
- 3 Green iguana

BIRDS

Birds are warm-blooded, vertebrate animals with four limbs, the front two of which are adapted into wings. They are the only animals that have feathers. Birds have light, hollow bones and a toothless beak. Most can fly, but a few cannot. Birds lay hard-shelled eggs, and most species protect their young until they leave the nest. Some species migrate to warmer climates during the winter. Most birds feed on insects or plants but some larger birds are meat-eaters.

Barb A fine projection branching out from the main stem of a feather. Each barb is lined with small hooks called **barbules** that zip separate barbs together.

Bill The hard, outer part of a bird's mouth, also known as its **beak**. It is made of light, hollow bone, covered in a horn-like layer. Birds use their bills to feed, preen, fight and build nests. Bill shape depends on the bird's lifestyle and diet.

THE FEATHERS ON A BIRD'S WING



Bird call The sounds that birds use to communicate with each other. Calls are short, simple sounds, used to alert other birds to danger or food. Longer, more complicated calls are called **birdsong**. They are used to establish territories and warn off intruders, or to attract a mate.

Brooding The process by which birds hatch their eggs, sitting on them to incubate them (keep them warm). However, not all species of bird brood.

Clutch A set of eggs laid by a bird. Clutch size varies between species. Some, such as albatrosses, lay one egg, but others, such as partridges, lay up to 30.

Contour feathers The outermost feathers on the body, wings and tail of a bird. In most species, they give the bird a smooth, streamlined shape for flight, but in some flightless birds they are just for show.

Covert feathers Small contour feathers that overlap flight feathers on the tail and wing of a bird to give a streamlined finish.

Crest The tuft of feathers on the head of some birds. Some species, such as the cockatoo, can raise and lower their crest as a form of communication or to make themselves seem larger to predators.



A MACAW IN FLIGHT

The macaw lifts its wings up above its back (1). It then pulls them downwards and backwards (2) before starting to lift them again (3). This makes it move upwards and forwards.

Down feathers The soft, fluffy feathers close to a bird's skin. These trap air to keep them warm. They are the often a newborn bird's first feathers.

Feathers Feathers enable birds to fly, and keep them warm and waterproof. They are made of a substance called keratin, similar to that found in our fingernails. Each feather has a central shaft, lined with barbs. The shaft is attached to the bird's body at one end, called the **quill**.



FEET SHAPES: Mallards have webbed feet for swimming, while jacanas have long toes to spread their weight out as they walk across lily pads.

Fledge To grow feathers. A **fledgling** is a young bird that has just fledged and is ready to leave its nest for the first time.

Flight feathers The long, stiff feathers on the wings and tail of a bird, used to gain height, steer and control speed when flying. They are divided into large, outer **primary feathers** and smaller **secondary feathers**, on the inside of the wing.



Flock A number of birds moving or resting together. Many species of bird flock when migrating. The flock offers them some protection, as a large group is more likely to spot predators.

Nest A structure built by a bird or other animal in which to lay eggs and take care of its young. Bird nests can be cup-like and made of mud, grass and twigs; holes in trees; or burrows underground. They are usually sited out of the reach of predators.

Plumage All of the feathers on a bird's body. Birds moult their plumage at least once a year, usually in a gradual process. The colour of plumage often varies between males and females of a species. Males are often brightly-coloured to attract a mate, while females have more muted colours, for camouflage when they are brooding.

Woodpeckers hold on to trees with their strong claws. **Ospreys** have spikes on their toes to grip on to slippery fish.

Preening The process by which birds clean their plumage to remove dirt or parasites and keep feathers in good condition. Birds use their bill or toes to smooth the barbs of their feathers. Many species have a **preen gland** on their tail, which secretes a conditioning, waterproofing oil. This is rubbed into the feathers when preening.

Roost A place where birds (and bats) rest and sleep, often in a tree, cave or other sheltered place. Roosting usually takes place in groups.

Spur A spike on the leg of some male birds, such as pheasants and chickens, used when fighting other males.



A chick developing inside an egg, nourished by yolk.

Talons The sharp claw of an animal such as a bird of prey. Talons are suited to plucking animals from the ground and carrying them away.

A golden eagle's nest, called an eyrie.



Eagles build their nests in trees or up tall cliffs.

FACTFILE

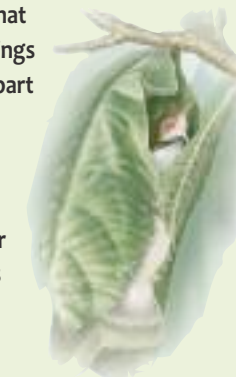
★ Birds have unusually large hearts and lungs. Air sacs keep their lungs inflated even as they breathe out. This gives them energy for flight and helps them breathe at high altitudes, where there is little oxygen.

★ The largest bird in the world is the ostrich, which grows to almost 3 m tall.

★ The smallest bird in the world is the bee hummingbird, which is only 5.7 cm long.

★ The muscles that power a bird's wings are the heaviest part of its body.

★ Tailorbirds (right) use plant material or spider silk to sew leaves together to form their nests.



Webbed feet Feet shaped like paddles with a flap of skin between each toe. Webbed feet help aquatic mammals and birds to swim more efficiently.

Wings The feathered front limbs of a bird, controlled by muscles in its chest. Fast flyers, such as ducks, have short, pointed wings which require constant movement in flight. Larger birds, such as eagles, have long wings, that enable them to glide on air currents. Some smaller birds can rapidly flap their wings to hover in the air.

Vane The flat surface of a feather formed of barbs and barbules linked together.

BIRD FAMILIES

There are over 10,000 species of birds in the world today, divided into many different families and orders, the largest of which is the perching birds and their relatives (♣18). Non-perching birds include the flightless ratites, the flesh-eating birds of prey, gamefowl, waterfowl, and other water birds, such as penguins, gulls and wading birds.

Birds of prey Meat-eating birds with sharp, hooked bills and strong talons. They swoop down to snatch their prey from the ground. Most species also eat carrion. They all have excellent long-distance vision.

Bustard A ground-nesting bird that lives on the plains of Africa, Europe and Asia. It has a heavy, brown body and long legs.



Ostrich

Cassowary A large, black, flightless bird from the rainforests of Australasia. It has a hollow, horny ridge on its head, which may be used to amplify its deep calls. Its middle toe has a sharp claw, used for slashing at enemies.



The mating dance of a red-crowned crane

Crane A tall wading bird with a long neck and legs. Cranes fly with necks and legs outstretched. They have elaborate mating rituals and some species mate for life.

Duck A bird that lives in fresh or saltwater habitats, feeding in the water and nesting on land. Ducks feed on grasses, water plants, fish, insects and worms. Some dip upside down to feed, while others dive. Ducks are strong flyers.

Eagle A large bird of prey. Eagles build their nests, called **eyries**, in trees or up cliffs, returning to the same nest each year. Most eagles feed on mammals or other birds, except for the fish-eating **sea eagles** and the **snake eagles** which feed on reptiles.

Emu A large, flightless bird from Australia with a long neck and legs and dark, shaggy plumage. It is the second largest bird and runs at speeds of around 50 km/h.

Falcon A fast-flying bird of prey with long, pointed wings. In a vertical dive, or **stoop**, a **peregrine falcon** can reach speeds of over 320 km/h. Some species, such as the **kestrel**, can hover in the air whilst searching for prey on the ground.

Flamingo A pink wading bird that uses its bill to filter shrimp and algae, from the water. The bird's pink colour comes from pigments in the shrimp and algae.

Gamefowl An order of birds with heavy bodies and short wings. They are ungainly flyers. Gamefowl include **turkeys**, **chickens**, **guinea fowl**, **grouse** and **partridges**. Some species are bred by humans for food.

Goose A large bird with a long neck and a notched bill, for pulling up grass. Geese often live near water. They are strong flyers.



A brown booby, a type of seabird.

Hawk A medium-sized bird of prey. Hawks include **kites**, **buzzards** and **harriers**. Most species have long tails and rounded wings, which enable them to change direction quickly when pursuing prey.

Heron A wading bird with a long neck and legs and long, thin bill. Herons live by rivers and lakes or in marshes. They stand motionless in the shallows waiting to snap up passing fish. When flying, their necks curve back in an S-shape. The heron family includes the **egrets** and the **bitterns**, which have shorter necks.

Ibis A tropical wading bird with a long, curved bill, used to snatch fish or dig for food in the mud. Its relatives, the **spoonbills**, have long, spoon-shaped bills.

Jacana A small, colourful wading bird from the tropics. It has very long toes, which spread out its weight as it walks across floating lily pads.

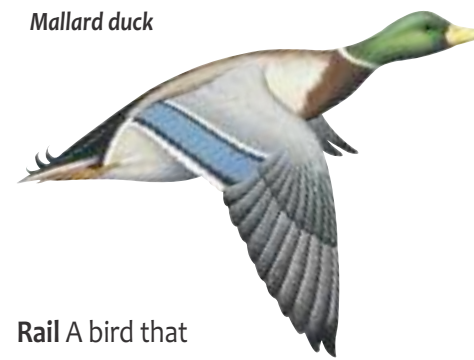


Turkey

Kiwi A small, flightless bird from New Zealand. It has a long, thin bill and shaggy plumage. It is the only bird with its nostrils at the tip of its bill. This helps it to smell insects and worms in the undergrowth.

Ostrich A flightless African bird. At almost 3 m tall, it is the world's largest bird. It is also the fastest creature on two legs, running at speeds of up to 70 km/h. Ostrich eggs are the largest laid by any bird.

Penguin A flightless bird that lives mostly on cold, southern coastlines. Clumsy on land, in the water, penguins are graceful and fast. To keep warm, they have several layers of feathers, and a thick layer of fat called blubber.



Mallard duck

Rail A bird that often lives near ponds, rivers or marshlands. Some species are camouflaged, but others, such as the **coot**, have bold markings. There are several flightless species, and most rails seldom fly.

Ratites An order of flightless birds that includes the ostrich, rhea, emu, cassowary and kiwi. Most are tall, running birds that live in open spaces.

Rhea A large flightless bird from South America. It has a long neck and legs and shaggy grey plumage.

Seabirds Birds that live in or near the sea. Some species dive into the water to feed. Others skim the surface, scooping up fish.

Stork A wading bird with a long, broad bill. Storks can survive in drier areas than cranes or herons. Some large species, such as the **marabou stork**, even feed on carrion (♣6).

Swan A bird with a long neck. Swans are the largest of the waterfowl. They are strong fliers and migrate long distances.

A group of flamingos feeding in shallow waters.



FACTFILE

★ Most ground nesting birds lay eggs that hatch out as fully feathered young.

★ Some birds have lost the ability to fly, because of a lack of natural predators (as in the case of the kiwi), or because they have developed other means of defence (such as the sharp claws on the feet of the ostrich, emu and cassowary).

★ Many eagles can kill and carry away large prey. Harpy eagles regularly prey on monkeys or sloths, and can carry prey as heavy as themselves.



Golden eagle

Vulture A large bird of prey that scavenges on carrion (♣6). Its head is bald, to make cleaning easier after feeding.

Waders Long-legged wetland birds, such as storks and herons, that wade in shallow water to hunt for fish.

Waterfowl Freshwater birds, such as ducks, geese and swans. They swim along the surface using their feet, which are usually webbed, as paddles. Waterfowl feed on fish, invertebrates and plants.

PERCHING BIRDS

With up to 6000 species, the perching birds, or “passerines”, are the largest family of birds. They are all land-living birds, with four toes, three pointing forward and one backward. Most feed on seeds or insects, but some eat fruit or nectar. Their young are born naked, blind and helpless and need to be cared for by their parents until they can leave the nest. Other families of tree-dwelling birds, closely related to the passerines, are sometimes grouped together as “near-passerines”.

(P) = Passerine bird
(NP) = Near-passerine bird

Antbird A small bird from the rainforests of Central and South America. It follows columns of marching ants, feeding on the insects they disturb. (P)

Bee-eater A small bird with bright plumage. It feeds on bees and other insects, smashing their stings on branches before swallowing them. (NP)

Bird of paradise A bird from the forests of Australasia. Males use their long, colourful plumage to attract a mate. They perform elaborate displays in the trees to show off their feathers. (P)



Hyacinth macaw



A magpie, a type of crow

Finch A small songbird with a strong bill, used to break open seeds. Males are often brightly coloured. Some species, such as the canary, are popular pets. (P)

Honeyguide The only bird that feeds on bees wax. It also eats bee larvae. (NP)

Hornbill A tropical bird with a bright, horny growth on its huge bill. It feeds on fruit and animals such as snakes. The female builds a nest with only a slit for an opening, through which the male feeds her. (NP)

Hummingbird A small, colourful, American bird that hovers in front of flowers, drinking nectar with its long bill. It beats its wings up to 80 times per second. (NP)

Kingfisher A small, often colourful bird. Some species live near rivers, diving for fish. Others feed on insects or worms. Kingfishers nest in sandy burrows. (NP)

Crow A bird with black, glossy feathers. Crows will eat anything, and can kill small animals to eat. They are curious birds, known to steal unattended human objects such as keys. Crows include ravens, rooks, choughs, jays and magpies. (P)

Cuckoo A bird best known for laying eggs in the nest of other species. The cuckoo egg quickly hatches and the cuckoo chick kicks its nestmates out of the nest. (NP)

Dipper A small songbird that lives in streams or lakes. It is the only perching bird with an aquatic lifestyle, swimming in pursuit of insects and fish. (P)



Hummingbird

Lark A small songbird, with long wings and dull colouring. Larks are well known for their tuneful birdsong. (P)

Mockingbird An American songbird that can mimic the songs of other birds and even imitate noises such as a frog croaking or a car alarm. (P)

Nightjar A nocturnal, insect-eating bird with large eyes and short legs. During the day, it nests on the ground, protected by its camouflage. Nightjars are related to the frogmouths, which have wide bills. (NP)

Owl A nocturnal bird that hunts rodents, smaller birds, frogs and insects. Owls have flat faces and superb eyesight and hearing. Their flexible necks mean they can even twist their heads to look backwards. (NP)



Toco toucan

Parrot A brightly coloured, tropical bird with a short, strong bill. Parrots include macaws, cockatoos and budgerigars. Some can imitate human voices. (NP)

Pigeon A round-bodied, powerful flyer. Smaller species are known as doves. Unlike most birds, pigeons can produce milk for their young, from a gland in their necks. (NP)



A tawny owl swooping down on its prey.

Pipit A small songbird with a long tail. Pipits have strong legs and run around on the ground looking for insects. Their relatives, the wagtails, have longer tails, which they characteristically bob up and down. (P)

Sandgrouse A sandy coloured, ground-dwelling bird from the deserts of Africa and Asia. Sandgrouse fly great distances to find water, soaking their feathers, so their chicks can drink from them. (NP)



Pigeon

Songbirds Perching birds that have extra muscles in their voice boxes. These muscles enable them to produce complex patterns of notes.

Sparrow A small, brown and grey songbird, that often lives in towns and may build nests in the eaves of houses. (P)

Kingfisher diving



Sunbird A small, brightly coloured songbird from rainforests of Africa. Sunbirds use their long bills to feed on nectar. Some species can hover over flowers. (P)

Swallow A small, fast-flying bird, with long, pointed wings and a long tail. Swallows and their relatives, martins, catch insects as they fly. They migrate, nest and feed in large flocks. (P)

Swift A small, fast-flying bird with long, pointed wings and a long tail. Swifts can mate, feed and sleep on the wing, and only land to nest. Swifts use their saliva to glue their nests together. (NP)

Thrush A small, plump songbird that lays speckled eggs. Its young often have spotted plumage. The thrush family includes robins, bluebirds and nightingales. (P)

Tit A small woodland songbird with a short bill. Species include the titmice and the chickadees. (P)

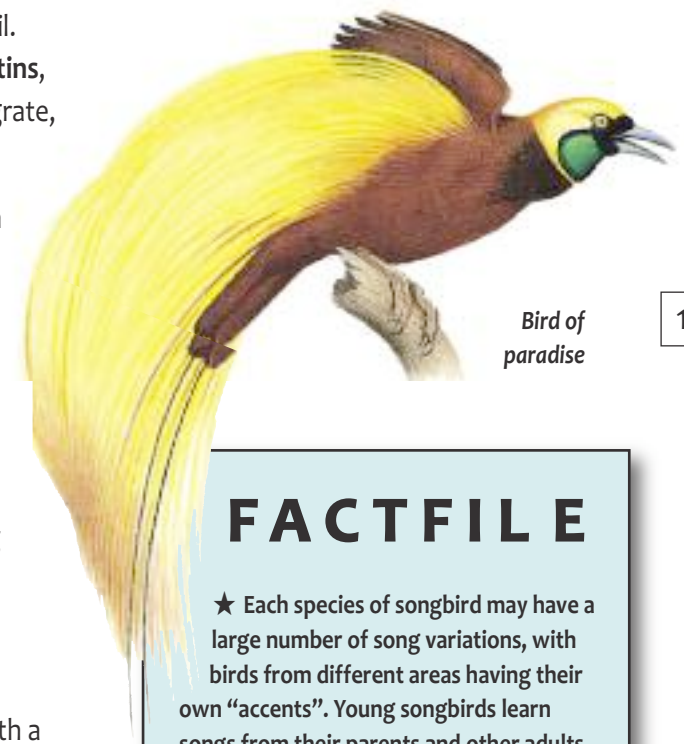
Toucan A bird with a large, brightly coloured bill, used to break open fruit. Toucans live in the tropics of America. They have short wings and can only fly small distances, but their strong legs help them to climb about in the treetops. (NP)

Trogon A brightly coloured bird from the tropical forests of America. Trogons have very long tail feathers. Their relatives, the quetzals, have green plumage on their wings and backs and red chests. (NP)

Warbler A small, songbird with a fine, pointed bill. The Old World warblers from Europe, Africa and Asia are dull in colour. The New World warblers from the Americas are more brightly coloured. (P)

Woodpecker A bird that clings to tree trunks and uses its bill to make holes in trees, from which it extracts insects to eat. It also uses this method to dig nest holes. Two of its toes point forwards and two backwards, giving it a good grip. A few species feed on the ground. (NP)

Wren A small songbird, with a round body and short, erect tail. Wrens have loud, complex songs.



Bird of paradise

FACTFILE

★ Each species of songbird may have a large number of song variations, with birds from different areas having their own “accents”. Young songbirds learn songs from their parents and other adults.

★ Many small perching birds alternately flap and then close their wings as they fly, in order to save energy.

★ The smallest perching bird is the short-tailed pygmy tyrant, which is 6.5 cm long.

★ The largest perching bird is the common raven, which grows up to 65 cm long.

★ Some birds can make and use tools. For example, Caledonian crows shape twigs into hooks in order to access hard to reach food.



Nightjar

MARSUPIALS & MONOTREMES

Monotremes and marsupials are mammals that do not give birth to fully developed young.

The young of monotremes are born inside soft-shelled eggs. They hatch after a few days and the young are suckled until they have fully developed.

The young of marsupials are born at a very early stage, and then continue to develop while clinging to their mother's body inside a pouch. Monotremes are found only in Australia and the surrounding islands. Most marsupials live in Australia, except for the opossums, which are native to America.

Bandicoot A small, rat-like marsupial with a long snout and long, strong claws for digging. It carries its young in a backwards-facing pouch.

Cuscus A possum with monkey-like features. It is an agile tree-dweller. Females have pouches, used to carry their young, one born at a time.



Koala

Dasyurids An order of small, carnivorous marsupials, that includes quolls, dunnarts, numbats and Tasmanian devils.

Diprotodonts An order of marsupials that includes kangaroos, wallabies, possums, koalas and wombats. They have large incisors in their lower jaw and the second and third toes of their hind feet are joined together. They are mostly herbivorous.

Dunnart A small, mouse-like marsupial with long back feet and a long tail.

Echidna A monotreme, also known as the **spiny anteater**. It has a long, thin snout and powerful claws for digging. Its body is covered in fur and sharp spines. Echidnas feed on ants or worms, crushing them between their tongues and the roofs of their mouths. They have a pouch that holds their young.

Two female kangaroos with their joeys.

Honey possum A small, marsupial with a long tail and a pointed snout, used to probe into flowers for nectar and pollen. It is one of the few nectar-feeding mammals.

Joey A young marsupial. When it is born, it is tiny, blind and hairless. Its limbs are not properly formed but it crawls through its mother's fur to her nipples. After several months, it leaves the pouch, but may return there to sleep for up to a year.

Kangaroo A large marsupial that moves by bounding on its long hind legs. Females have forward-facing pouches where their young develop. Kangaroos live in groups, called "mobs", on open, grassy plains.



A newborn kangaroo joey suckling

Koala A marsupial that lives in trees, feeding on eucalyptus leaves and shoots. It has a large nose and ears. Koalas use their grasping hands to cling on to tree trunks and to their mothers' backs. Koalas spend three-quarters of their day sleeping, stirring only as dusk falls.



A Victoria opossum with young

Marsupial mole A marsupial that closely resembles true moles (♣23) in appearance and behaviour. Marsupial moles tunnel underground, hunting for insects and worms. Females have backwards-facing pouches and only two nipples, meaning they can only have two young at a time.

Numbat A marsupial also known as the **banded anteater**. It has stripes on its back, dark markings around its eyes and a bushy tail. It feeds almost entirely on termites.

Opossum An American marsupial, with a long snout, large canine teeth and a long, hairless tail. Opossums are often called possums, but belong to a separate family to the "true" Australian marsupials. Most species live in trees, are omnivorous and have pouches. When threatened, they may pretend to be dead or "play possum".

An echidna (below) and its soft-shelled egg (right)



Platypus A monotreme that lives in rivers, lakes and creeks. It has webbed feet and a duck-like bill, used to probe for worms and insect larvae in the mud. Males have spurs on their legs that can eject venom, which is strong enough to kill a dog.

Possum A nocturnal, omnivorous marsupial. Most possums live in trees and have several young at a time. The female carries her young in a pouch for several months, before they crawl out and cling to her back for several more.

Quoll A carnivorous marsupial, also known as a "native cat". Quolls have pink noses and white spots on their backs. Females only develop pouches during the mating season.

Shrew opossum A small, shrew-like opossum from the Andes Mountains. It feeds at night, hunting worms and other invertebrates.

Tasmanian devil The largest carnivorous marsupial, from the Australian island of Tasmania. It has a stocky body and dark fur with white markings on its chest. It is usually a scavenger but can also kill small animals.

FACTFILE

★ For millions of years, Australia was isolated from the rest of the world. On other continents marsupials lost out in competition for food with placentals (mammals whose young develop inside the mother's womb). With the exception of the opossums, they died out, but in Australia, they had no placental rivals, so they thrived.

★ The smallest marsupial is the long-tailed planigale, with a body length of 0.6 cm and tail length of around 5 cm.

★ The largest marsupial is the red kangaroo. Large males can grow up to 2 m tall.



A wombat

Tree kangaroo A tree-dwelling marsupial, that lives in rainforests. Unlike its relative, the kangaroo, it does not have elongated hind legs.



Platypus

Virginia opossum The only marsupial found in North America and the largest opossum, growing up to 1 m long. It is often found near towns, rummaging for food in bins.

Wallaby A small, stocky marsupial. Wallabies have thicker fur than their relatives the kangaroos, and live in a wider variety of habitats, including rocky terrain, grassland and forests.

Wombat An Australian marsupial with a short tail and legs. Wombats are powerful diggers and live in underground burrows. Their pouches are backwards-facing to stop soil from getting inside them.

RODENTS & INSECTIVORES

Rodents are the largest order of mammals. They all have a set of grinding teeth and two pairs of long, sharp front teeth for gnawing. Rodents feed mainly on plant material but some may also eat insects or small animals. They have many young at once and their teeth grow throughout their lives. Insectivores are a loose grouping of mammals that feed on insects, worms and other tiny creatures. They are mostly nocturnal and include xenarthrans, bats, shrews and hedgehogs among others.

Aardvark A nocturnal, burrowing xenarthran with strong claws, for breaking open ant and termite nests, and a long sticky tongue, for licking up insects. It lives in hot, dry regions of Africa.

Anteater A xenarthran from Central and South America, with a long snout and bushy tail. It breaks open insect mounds and laps up insects with its long, sticky tongue.

Armadillo A xenarthran whose body is protected by a covering of bony plates. Only its belly is soft. Some species protect this by curling into a ball.

The snowshoe hare takes its name from its fur-covered feet, which help it to run on the snow.



Bat A nocturnal, flying mammal with wings made of skin stretched between its front and rear limbs. Some bats feed on fruit or nectar, but most species feed on insects or other animals. They use **echo-location** to find their prey, making high-pitched calls and listening to their echoes in order to build a picture of their surroundings in the dark.

Beaver A large, semi-aquatic rodent with webbed hind feet and a broad flat tail. Beavers use their sharp teeth to fell trees, with which they build their homes, called **lodges**, in the centre of lakes.

Capybara The largest rodent, at 1.3 m long. It lives in South America and can dive into rivers to escape from predators.

Chinchilla A long-haired, grey rodent from the Andes Mountains. It has a bushy tail and large ears.

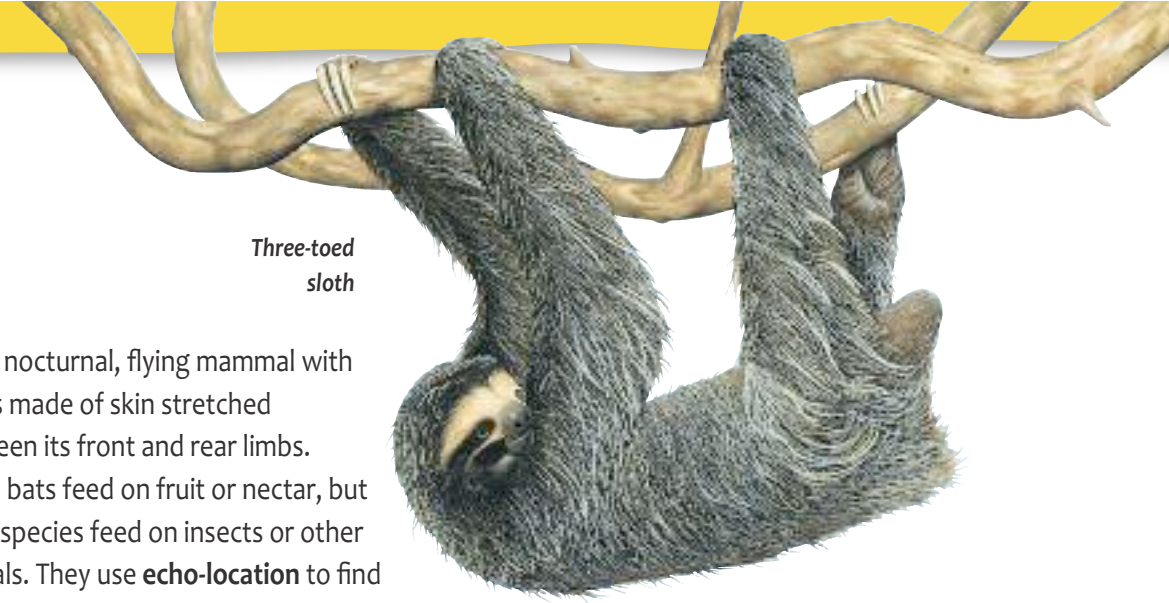
Coypu A large, semi-aquatic rodent native to South America. It resembles a beaver but has a thin tail like a rat's.

Dormouse A small, mouse-like rodent with a furry tail. Species from colder climates may hibernate for over six months a year.



Gerbil A small, burrowing desert rodent. Its feet and tail are covered in fur to protect it from sunburn. It mostly moves about on four legs but can use its long back legs to bound away from danger.

Three-toed sloth



Guinea pig A widely domesticated rodent from the Andes Mountains. It belongs to the **cavy** family, alongside the capybara and the hare-like **mara**.

Hamster A small burrowing rodent with no tail. It has large cheek pouches, which it stuffs with food to take back to its burrow.



The pangolin's thick scales cover almost all of its body.

Hare A lagomorph with long ears and legs. Hares are larger than rabbits and their young are born fully developed. They live in open grassland and use their long legs to run away from predators.

Hedgehog A nocturnal insectivore with a pointed snout and spines on its back. If threatened, it rolls into a protective ball.

Jerboa A burrowing, mouse-like rodent from the deserts of Asia and North Africa. It bounds about on its long hind legs, rarely using its short front legs.

Lagomorphs An order of herbivorous, rodent-like mammals with four pairs of front teeth, one pair behind the other. They include rabbits, hares and pikas.

Lemming A small rodent that lives and migrates in large groups. Lemmings live in burrows close to the surface of the ground.

Mouse A small rodent with a long hairless tail. Mice feed mostly on grains, seeds and other plant material. The most common species is the **house mouse**, which lives in areas inhabited by people.

Mole A small, burrowing insectivore with clawed, shovel-like paws and small eyes. Moles tunnel underground in search of worms and other invertebrates to eat.



Capybara

Pangolin A tropical, nocturnal insectivore, covered in thick, bony scales. If threatened, it curls into a ball. Pangolins feed on ants and termites. Some species are tree-dwellers, while others are ground-dwellers.

Pika A small lagomorph with short legs and small ears. Pikas live in mountainous regions, sheltering in burrows or crevices. They store food for the winter by piling up grass, which then dries out in the sun.

Pocket gopher A burrowing rodent from the Americas, with large front teeth, used to pull out roots and loosen the earth as it digs. It has huge, fur-lined cheek pouches.

Porcupine A large rodent with sharp, hollow spines called **quills**. If threatened, it runs backwards, ramming quills into its attacker's skin. Some species live in trees, while others are ground-dwelling.

Rabbit A long-eared lagomorph that digs burrows, where it sleeps, gives birth and escapes from predators. Rabbits' young are born blind, hairless and helpless.



The 2-m-long giant anteater

Rat A rodent with a long, thin tail. The **black rat** and **brown rat**, originally from Asia, were accidentally transported around the globe by early travellers.

Shrew A small insectivore with a long tail and snout. Some are venomous (♣ 13), using their bite to stun large prey such as frogs. Shrews have the highest brain to body size ratio of any animal, including humans.

Sloth A nocturnal rainforest xenarthran. It has long legs, a flat face and long, curved claws. Sloths hang upside down from trees, feeding on leaves.



A chipmunk, a type of squirrel

Solenodon A small, venomous (♣ 13), shrew-like insectivore found only on the islands of Haiti and Cuba.

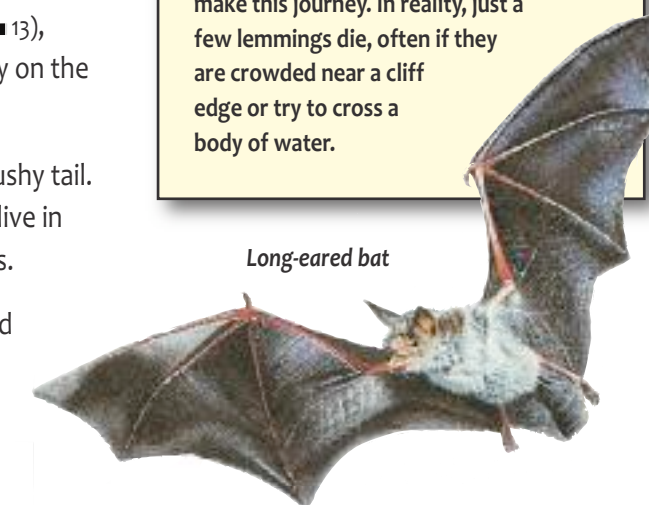
Squirrel A rodent with a long, bushy tail. Some, such as **ground squirrels** live in burrows, but others nest in trees.

Vole A mouse-like rodent, related to lemmings. Most species live in woodlands or meadows, but some live near streams.

Xenarthrans A superorder of mammals, including anteaters, armadillos and sloths. Their backbones have extra joints that strengthen and support their bodies when they dig. Xenarthrans have few or no teeth.

FACTFILE

- ★ 45-50% of all mammals are rodents.
- ★ An Indian jerboa known as the antelope rat can leap up to 4.5 m in one hop.
- ★ At 2.5 cm long, the pygmy jerboa is the smallest rodent of all.
- ★ Some insect-eaters, such as moles and shrews, have foul-tasting skin to deter predators from attacking them.
- ★ Solenodons closely resemble mammals that lived during the last years of the age of the dinosaurs, around 65 million years ago.
- ★ When their population increases, lemmings disperse to find new territory. Many people falsely believe that they suicidally jump from cliff tops when they make this journey. In reality, just a few lemmings die, often if they are crowded near a cliff edge or try to cross a body of water.



Long-eared bat

PRIMATES

Primates are an order of intelligent mammals with forward-facing eyes and flexible fingers and toes. Most species are good tree-climbers that live in forests. Primates are divided into lower primates (prosimians), such as lemurs and lorises, and higher primates (simians) such as monkeys, apes and humans.

Apes A family of omnivorous simians with long arms and no tails. The family is divided into the lesser apes (gibbons) and great apes (orang-utans, chimpanzees, gorillas and humans). **Great apes** are larger and more intelligent than lesser apes.

Aye-aye A rare, nocturnal lemur with big ears and eyes a long middle finger, used to scrape grubs from under bark. It is hunted by locals, who think it brings bad luck.

Baboon An Old World monkey with large canine teeth and no fur on its face or buttocks. It lives in groups called **troops**, eating anything from plants to gazelles.



Gorilla

Bush baby An African, tree-dwelling prosimian, named after its wailing cry. It has large eyes and ears and a long tail. It is also known as the **galago**.

Capuchin A small New World monkey with dark fur and a white face and chest.



A ring-tailed lemur with its young

Chimpanzee An African great ape that feeds on insects, leaves and sometimes small monkeys. There are two species: the common chimpanzee and the **bonobo**. Both use sticks and stones as tools.

Colobus A herbivorous Old World monkey with a long tail, thick fur, and no thumbs. Species range in colour. Some have bushy fur on their faces, backs or tails.

Gibbon An ape with long arms and no tail. Gibbons, also known as **lesser apes**, live in rainforests of Southeast Asia. They are smaller and less intelligent than great apes. Gibbons can swing through the trees at speeds of more than 55 km/h.

Gorilla A large, African, ground-dwelling great ape that feeds only on vegetation. Adult males reach heights of around 2 m when standing upright, making them the largest of the primates. Gorillas live in groups, usually of one male and several females. There are two species of gorilla: the Western and Eastern gorilla.

Howler monkey A large New World monkey with a prehensile tail. It lives in rainforest treetops, feeding mostly on leaves. Howler monkeys have very loud calls that can be heard over 10 km away.

Lemur A prosimian with a long tail and soft coat of fur. Lemurs are found only on the island of Madagascar. Most species live in the trees. When on the ground, most lemurs move on all fours, but some species, such as the **indris** and **sifakas**, bound along on their hind legs.

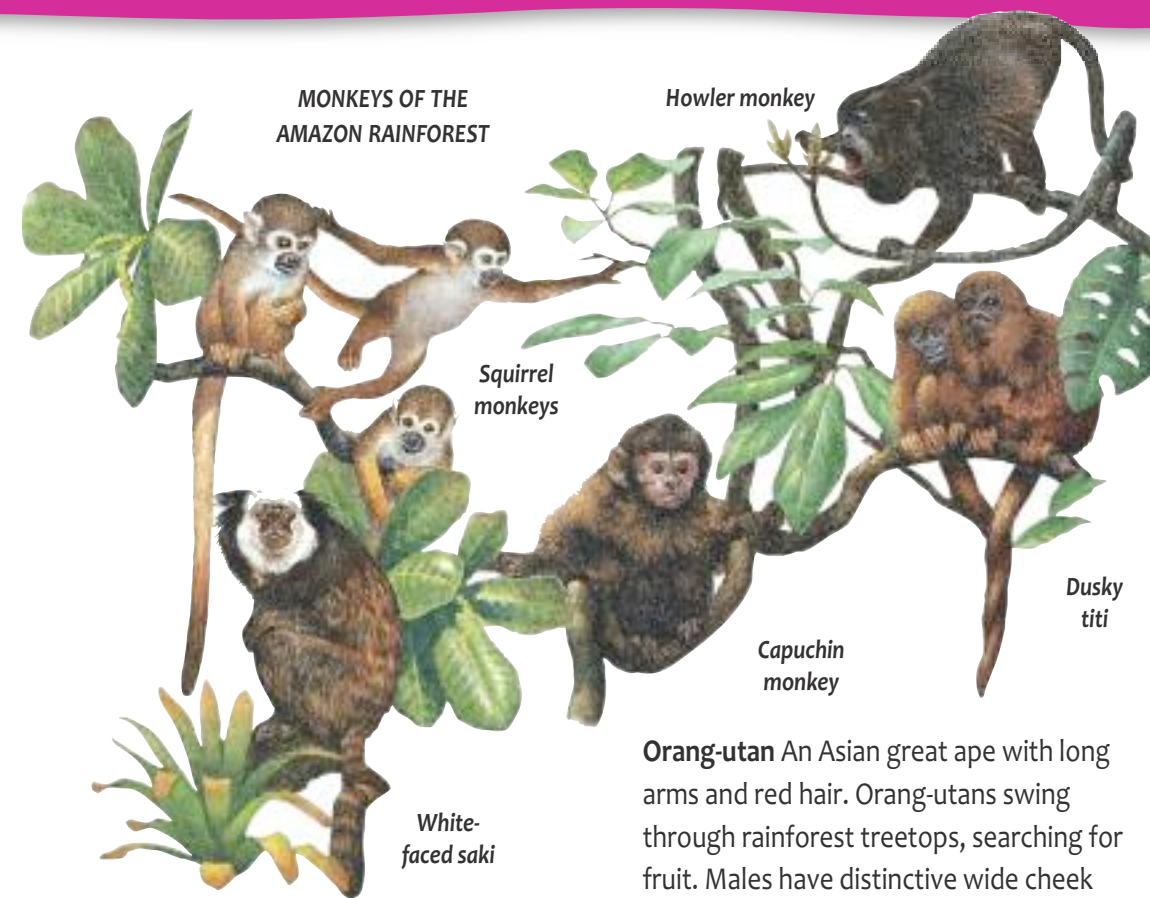
Loris A nocturnal prosimian with dark marks around its eyes. It moves slowly through the treetops of tropical Southeast Asia, freezing if it senses danger.



Aye-aye

Macaque An omnivorous Old World monkey. Some Japanese macaques live in cold regions, where they bathe in hot springs to keep warm.

Marmoset A very small Old World monkey with tufts of hair around its head. Unlike most monkeys, it has claws instead of nails.



MONKEYS OF THE AMAZON RAINFOREST

Howler monkey

Squirrel monkeys

White-faced saki

Capuchin monkey

Dusky titi

A chimpanzee (below) pushes a twig into a termite nest, then pulls it out, covered with termites to eat.



Monkeys A family of simians with long tails and nails instead of claws. Most monkeys live in trees although some come down to feed or travel. Most feed on fruit, leaves, insects and other small creatures.

New World monkeys Monkeys that are native to the Americas. They have widely-spaced nostrils and are the only monkeys with prehensile tails. Most live in treetops.

Old World monkeys Monkeys that are native to Africa and Asia. They have closely-positioned nostrils and non-prehensile tails.

Orang-utan An Asian great ape with long arms and red hair. Orang-utans swing through rainforest treetops, searching for fruit. Males have distinctive wide cheek flaps and sagging throat pouches.

Prehensile Adapted for grasping. Some New World monkeys have a prehensile tail that can be used as an extra limb when climbing. They can even hang from their tails, leaving their hands free to feed.

Proboscis monkey An Old World monkey that lives in mangrove forests. The male has a large, trunk-like nose which hangs over his mouth and amplifies his calls.

Prosimians The lower primates: lemurs, lorises, bush babies and tarsiers. They have pointed faces, long tails and smaller brains than higher primates. Most are nocturnal and have large eyes to see in the dark.

Simians The higher primates, made up of monkeys, apes and humans. They have flat faces, large brains and good eyesight.

FACTFILE

- ★ The smallest primate is the Berthe's mouse lemur, which is just 9.2 cm long.
- ★ The great apes all make "nests" to sleep in at night. They tear and bend leafy branches to make a platform in a tree or a cushion on the hard ground.
- ★ Chimpanzees are the closest relatives of humans.
- ★ In October 1960, chimpanzees were first observed using tools. Before this, it was thought that only humans used tools. Since then, all other ape species have been observed using some sort of tool.

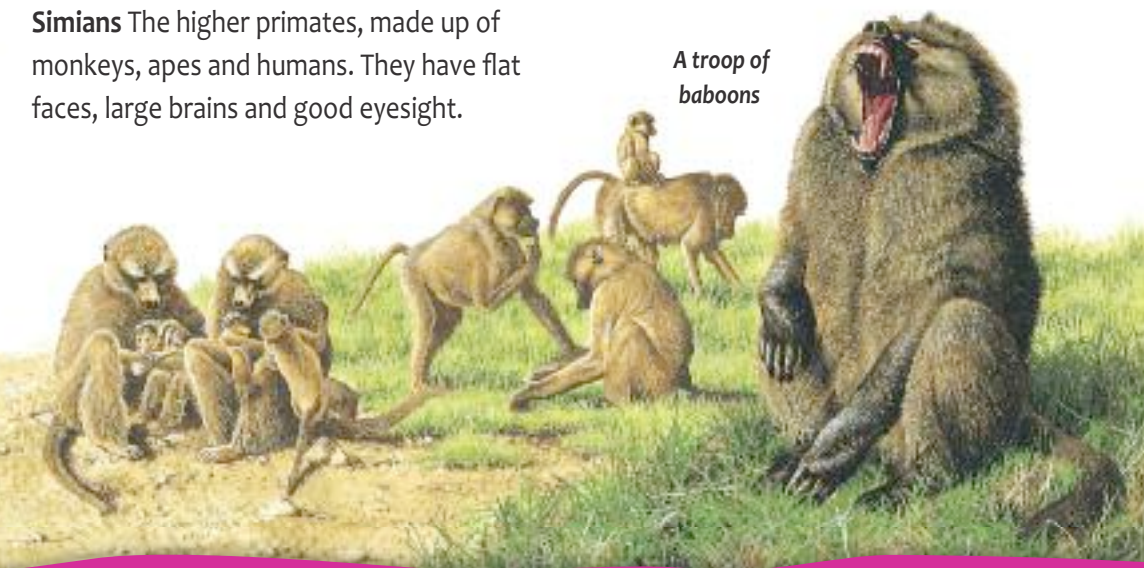


Tarsier

Spider monkey A large New World monkey with long legs and a prehensile tail, which helps it swing through the treetops.

Squirrel monkey A small New World monkey with short fur and a long, heavy tail. It lives in large groups, which play, feed and hunt together.

Tarsier A nocturnal prosimian with large eyes, long fingers and a long thin tail. It prowls the forests of Southeast Asia in search of insects. Tarsiers are the only entirely carnivorous primates.



A troop of baboons

UNGULATES

Ungulates are a group of four-legged mammals with hooves instead of claws on their feet. They evolved to stand and run on the tip of their toes which, over time, developed into hard hooves, giving them speed to escape from predators. Ungulates are almost entirely herbivorous and all have large, flat teeth for grinding plant material. Ungulates are divided into two main groups: the odd-toed ungulates and the even-toed ungulates.



An African elephant using its trunk to squirt water into its mouth.

Antelope A fast-running, even-toed ungulate with long legs. All males, and some females, have horns. Antelopes include gazelles, impalas and wildebeest. Most species live on the plains of Africa.

Bovids A family of ungulates that includes cattle, antelope, sheep and goats. They all have horns and hooves that are split into two toes. Many live in herds.

Camel A two-toed, desert ungulate that stores fat deposits in humps on its back. It can go a long time without food or water. The **dromedary camel** has one hump on its back and the **Bactrian camel** has two.

Zebra



Cattle Bovids kept by humans for milk and meat. Domestic cows are descended from wild aurochs, which are now extinct.

Deer A long-legged, two-toed ungulate. Males have bony antlers that are shed and re-grown each year.

Donkey A small member of the horse family with an erect mane and long ears. Many donkeys are domesticated.

Elephant A large animal with big ears and a long, flexible trunk. Elephants are known as “subungulates” because their nails and cushioned feet are halfway between claws and hooves. African elephants have larger ears and longer tusks than the smaller Asian elephants. African males stand around 4 m tall at the shoulder. They are the largest land animals in the world.

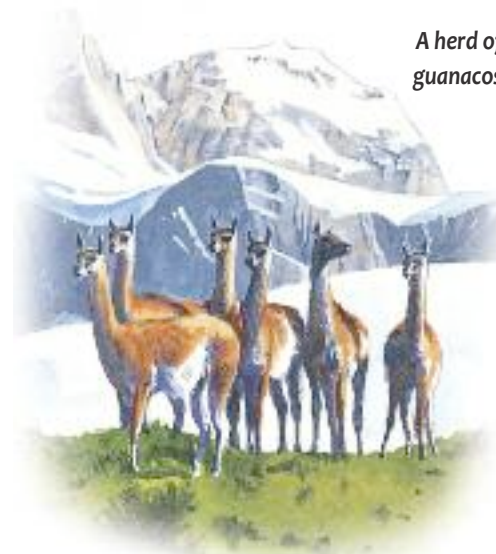
Giraffe A two-toed African ungulate, with a long neck and legs and small, skin-covered horns. Measuring over 5 m tall, the giraffe is the tallest land animal. It is able to run at speeds of over 50 km/h.



Goat A two-toed ungulate with horns, a stocky body and an upwards-pointing tail. Many males have beards. Wild goats live on rocky mountainsides.

Guanaco A small, wild, South American relative of the camel. It has a long neck and legs, small ears and very warm wool.

Hippopotamus A large, four-toed African ungulate. Hippos live close to rivers and ponds. They bathe in cool waters during the heat of the day and graze at night. Their eyes, ears and nostrils stick out of the water when they bathe.



A herd of guanacos

Horse An ungulate with a single toe, a long tail and a mane of hair on its neck. Horses have excellent eyesight for spotting predators. They can run at top speed for long distances.

Hippopotamus



Male reindeer compete with rivals for females by pushing each other with their antlers.

Llama A South American relative of the camel. It is used by humans to carry heavy loads across rough terrain. Its smaller relative, the **alpaca** is bred for its wool.

Moose The largest member of the deer family. It stands 2 m tall and has massive antlers. Moose live in the northern forests of Siberia, Europe and North America.

Okapi A relative of the giraffe with a black body and black-and-white striped legs. It lives in the rainforests of Africa.



Malayan tapir

Peccary A pig-like ungulate with two tusks pointing up and two pointing down. It can snap its tusks together as a warning noise.

Pig A four-toed ungulate with short legs, a large head and a stocky body. Pigs use their snouts to sniff out plants, worms, and small animals. Some, such as **domestic pigs**, **wild boars** and **warthogs**, have large canine teeth, which curve up to form tusks.

Reindeer A deer from the treeless lands bordering the Arctic Ocean. Both males and females have large antlers. Reindeer, also known as **caribou**, feed in herds, grazing on grasses and other small plants.

Rhinoceros A large ungulate, with three toes on each foot. It feeds mostly on grass. There are five species of rhinoceroses: the black and white African rhinoceroses and the Indian, Sumatran and Javan rhinoceroses.

Ruminants Ungulates with stomachs divided into parts where food is broken down in stages. This helps to extract the nourishment they need from their plant-eating diets. In some species, food is sent back to the mouth to be chewed after the first stage of digestion. Ruminants include camels, giraffes, deer and bovids.

A two week old giraffe with its mother.



FACTFILE

★ If a horse and a donkey breed, their offspring is called a mule, and is sterile, meaning it cannot reproduce.

★ Elephants produce low calls that can be heard many kilometres away. Other elephants “hear” the calls as vibrations in the soles of their feet. They also place their trunks to the ground to detect vibrations.

★ Glands on the skin of hippos excrete an oily, pink-coloured liquid that acts like sunscreen, protecting their skin from the hot African sun.

★ Because of their excellent sense of smell, pigs are sometimes used by humans to find truffles, a valuable underground mushroom. However, the pigs will often eat the truffles.



The stomach of an antelope—a type of ruminant

Sheep A two-toed ungulate, domesticated for its wool and meat. Wild sheep live on mountainsides and have curling horns.

Tapir A three-toed ungulate with a small trunk. It lives in the tropical forests of South America and Asia. Young tapirs have stripes or spots, which help them to blend in with the dappled light of the forest floor.

Vicuña A small, wild, South American relative of the camel. It has a slender body, long ears and soft, warm wool.

Zebra An African member of the horse family, with black and white stripes. These may be a means of camouflage in long grass or a way for individuals to recognize each other by their patterns.

CARNIVORES

The word carnivore usually describes animals that feed on meat, but not all meat-eaters belong to the carnivore group, nor do all carnivores eat only meat. Carnivores include cats, dogs and bears as well as weasels, raccoons and mongooses. Most are meat-eaters but others also feed on insects and fruit. They are grouped together because they are all descended from mammals that had special teeth for cutting through flesh.

Badger A nocturnal, omnivorous member of the weasel family. Badgers have stocky bodies and strong paws for burrowing.

Bear A large, heavily-built carnivore. Most bears live in forests, and smaller species such as the **black** and **sun bear** are good climbers. Northern species, like the **brown bear**, spend the winter in caves or dens dug under snow. Most bears are omnivores, except for **polar bears**, which feed mostly on seals.

Black panther A leopard or jaguar that is completely black.

Cat A predatory carnivore with a long tail and muscular body. The cat family is divided into **big cats**, such as lions and tigers, and **small cats**, such as the **ocelot**, **bobcat** and **domestic cat**. Most kill their prey with a suffocating bite to the throat.



Red panda



A grizzly bear fishing for salmon

Cheetah A big cat from Africa and Asia with a lean body and spotted markings. It is the fastest land animal, reaching speeds of up to 120 km/h. Its semi-retractable claws give it grip for running.

Red fox



Civet A cat-like carnivore from Africa and Asia, with a long body and short legs. Many civets have dark stripes and spots on their backs. They all produce musk.

Coyote A wolf-like grey dog from Central and North America with a distinctive howl.

Dog A carnivore with strong jaws and long legs. Dogs live in groups called **packs**. They can travel great distances in search of food. They mostly eat meat but also feed on plant matter.

Fox A small member of the dog family with a pointed muzzle and bushy tail. Foxes include the **red fox**, the **Arctic fox** and the desert **fennec fox**.

Giant panda A large, black and white bear from the mountain forests of China. Its diet is almost entirely made up of bamboo. Giant pandas are rare because much of their habitat has been destroyed.

Hyena A carnivore from Africa and Asia with a sloping back and strong jaws, that can crush bones. Hyenas are scavengers and hunters. The **spotted hyena** has a loud call that sounds like human laughter.

Jackal A nocturnal dog from Asia and Africa. It both hunts and scavenges.



Weasel

Jaguar A big cat with yellow-brown fur and dark spots. It prowls the rainforests of South America. Unlike other cats, it kills its prey with a fatal bite through the skull.

Leopard A big cat from Africa and parts of Asia. It has yellow fur with black rosette-like markings. The **snow leopard** has white fur, and the **clouded leopard** has marbled markings.

Lion A tawny-coloured big cat from Africa and Asia. Lions live in groups called **prides**. Males have a shaggy mane of fur. Together, females do most of the hunting.

Lynx A medium-sized wild cat with tufted ears and a short tail. Lynxes live across North America, Europe and Asia.

Mongoose A small, long-bodied carnivore. Most species are solitary, but some, such as the **meerkat**, live in groups. A few species, such as the **Indian mongoose**, are able to fight and kill venomous snakes.

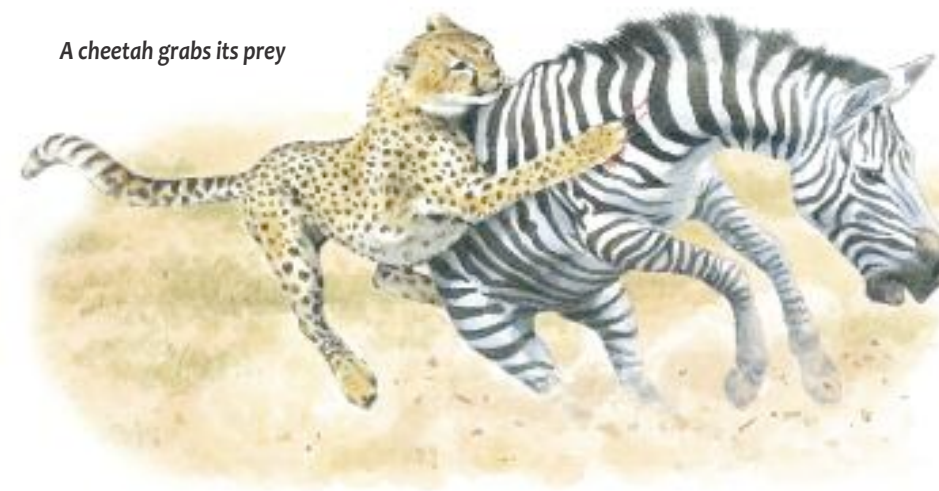


Bengal tiger

Musk A foul-smelling liquid produced by many members of the weasel family, used to mark territory and deter predators.

Otter A semi-aquatic, fish-eating member of the weasel family with webbed paws. Most species live near rivers or ponds.

Puma A tawny-coloured big cat that lives across the Americas. It is also known as the **cougar** or **mountain lion**.



A cheetah grabs its prey



A pack of spotted hyenas feeding on a wildebeest.

Raccoon An omnivorous carnivore with a long tail, short legs and agile fingers. Raccoons are native to North America. The raccoon family includes **raccoons**, **coatis**, **kinkajous** and **ringtails**.

Red panda A small, red, raccoon-like carnivore related to neither raccoons nor the giant panda. It lives in the forests of Asia feeding on fruit and leaves.



Cats' claws can be drawn in when walking to stop them from becoming blunted on the ground.

Skunk An omnivorous American weasel with a bushy tail and black and white markings. If threatened, a skunk will turn its back on its attacker and spray strong-smelling musk in its face.

Tiger A big cat from Asia with a tawny coat and dark stripes that help it to hide in tall grass. The largest tiger is the 4-m-long Siberian tiger; the smallest is the Bengal tiger. Tigers are solitary animals. They do most of their hunting at dawn and dusk.

Weasel A carnivore with a long body and short legs. The weasel family, also called the **mustelids**, includes weasels, polecats, martens, skunks, otters and badgers. Most species feed on rodents, but some will also eat worms, fruit and insects.

Wolf A large wild dog with powerful jaws. Wolves live in packs, working together to bring down large prey. **Domestic dogs** are descended from wolves.

FACTFILE

- ★ Most cats can only run at top speeds for short bursts. They lie in wait until their prey approaches, then sprint after them.
- ★ The musk of some members of the weasel family is collected by humans and used to make perfume.
- ★ The polar bear is the largest land carnivore, measuring up to 3 m tall.
- ★ An adult lion's roar can be heard up to 8 km away.
- ★ A leopard can drag prey twice its own weight into a tree, where it then feeds on it.
- ★ Raccoons can use their hand-like paws to open latches and even remove bin lids.

INDEX

A

aardvark 22
agamid 12
alligator,
 American 10
 Chinese 10
alligators 10-11
alpaca 27
amphibians 6-9
anaconda 12-13
anole 12-13
antbird 18
anteater 22-23
antelope 10, 26-27
apes 24-25
armadillo 22-23
axolotl 8
aye-aye 24

B

30 baboon 24-25
badger 28-29
bandicoot 20
barb 14-15
barbules 14-15
bats 15, 22-23
bear,
 black 28
 brown 28
 grizzly 28
 polar 28-29
 sun 28
bears 28-29
beaver 22
bee-eater 18
bills 14-19
bird call 14
bird of paradise 18-19
birds 6-8, 10, 14-19
 of prey 15, 16
 perching 16, 18-19
 sea 17
 wading 16-17
birdsong 14, 18
boas 12-13

bovids 26-27
brooding 14
browsers 6
bullfrog 8
bush baby 24-25
bustard 16

C

caecilian 8
caiman 10
camels 26-27
camouflage 6, 15, 17, 18, 27
capuchin 24-25
capybara 22-23
carapace 10-11
carnivores 6-7, 12, 20-21,
 25, 28-29
carrion 6, 16-17
cassowary 16-17
cats 7, 28-29
cattle 26
chameleon 7, 12
cheetah 28-29
chimpanzees 24-25
chinchilla 22
civet 28
clutch 14
cobras 12
colobus 24
colubrid 12
congo eel 8
constrictors 12-13
coyote 28
coypu 22
cranes 16
crocodile,
 Nile 10-11
 saltwater 10-11
crocodiles 7, 10-11
crows 18-19
cryptodira 11
cuckoo 18
cuscus 20

D

dasyurids 20
deer 26-27
dipper 18
diprodonts 20

dogs 28-29
donkey 26-27
dormouse 6, 22
ducks 15, 16-17
dunnart 20

E

eagle,
 golden 15, 17
 sea 16
 snake 16
eagles 15, 16-17
echidna 20-21
elephants 26-27
emu 16-17

F

falcons 16
feathers 6, 14-15, 18
 contour 14
 covert 14
 down 14
 flight 14-15
finches 18
fish 6-10, 16-18
flamingo 14, 16-17
fledge 15
flock 15
foxes 28
frog,
 Brazilian gold 9
 Darwin's 8
 flying 8
 poison-arrow 9
 tree 8-9
frogmouth 18
frogs 6-9, 18, 23

G

gamefowl 16
gazelle 24, 26
gecko 12
gerbil 22
gharial 10-11
gibbon 24
gila monster 12

gills 6, 8-9
giraffe 26-27
goat 26
goose 16
gorillas 24
grazers 6
guanaco 26
guinea pig 22

H

hamster 22
hare 22
hawks 16
hedgehog 22
herbivores 6, 20, 26-27
herd 26-27
heron 17
hibernation 6
hippopotamus 26-27
honey possum 20
honeyguide 18
hornbill 18
horse 26-27
human 23, 24-27
hummingbird 15, 28
hyenas 28-29

IJ

ibis 14, 17
iguanas 12-13
impala 26
insectivores 22-23
insects 7, 11, 14, 16-19,
 22, 25, 28-29
invertebrates 6-7, 17, 21, 23
jacana 15, 17
jackal 28
jaguar 7, 28
jerboa 22-23
joey 20

K

kangaroo,
 red 21
 tree 21
kangaroos 20-21
kingfisher 18-19

kiwi 17
koala 20
Komodo dragon 12-13

L

lagomorphs 22-23
larvae 8-9, 18, 21
lemming 23
lemurs 24-25
leopards 7, 28-29
lion 7, 29
lizard,
 flying 12
 legless 12
 monitor 13
 wall 13
 whiptail 13
lizards 7, 11, 12-13
llama 27
loris 24-25
lynx 29

M

macaque 24
macaw 14, 18
mallard 15, 18
mambas 13
mammals 6-7, 10, 20-29
mammary gland 7
marmoset 24
marsupial mole 21
marsupials 20-21
metamorphosis 8
mice 8, 23
migration 7, 14, 19
mockingbird 18
mole 21, 22-23
mongoose 28-29
monkey,
 howler 24-25
 proboscis 25
 spider 25
 squirrel 25
monkeys 17, 24-25
monotremes 20-21
moose 27
mudpuppy 9
musk 28-29

N

newts 8-9
nightingale 19
nightjar 18
nocturnal 7, 18, 21,
 22-25, 28
numbat 20-21

O

okapi 27
olm 9
omnivores 7, 21, 24, 29
opossums 20-21
orang-utan 24-25
ostrich 15, 16-17
otter 29
owls 18-19

P

panda,
 giant 28
 red 28-29
pangolin 22-23
panther, black 28
parrots 18
passerines 18-19
peccary 27
penguin 16-17
pigeons 18-19
pika 22-23
pipit 19
plastron 10-11
platypus 21
pleurodira 11
plumage 15, 17, 18-19
pocket gopher 23
porcupine 23
possum 20-21
predator 6-7, 10, 26, 28-29
preening 15
prehensile tail 24-25
prey 7, 28
primates 24-25
prosimians 24-25
puma 29
pythons 13

QR

quill 14
quoll 20-21
rabbit 22-23
raccoons 28-29
rails 17
rats 23
ratites 17
rattlesnake 13
reindeer 27
reptiles 7, 10-13
rhea 17
rhinoceroses 27
rodents 18, 22-23
roost 15
ruminants 27

S

salamander,
 blue 9
 fire 8
 Japanese giant 8
 mole 9
salamanders 8-9
sandgrouse 19
scavenger 7, 21, 28
sheep 26-27
shrew 22-23
simians 24-25
siren 9
skink 13
skunk 29
sloth 17, 22-23
slow worm 12
snake,
 blind 12
 coral 12
 garter 12
 milk 12
 sea 13
 shieldtail 13
 tree 12
snakes 6-8, 12-13, 18
solenodon 23
songbirds 18-19
sparrow 19
spiny anteater 20
squirrels 23
storks 17

sunbird 19
swallow 19
swan 17
swift 19

T

tadpoles 8-9
tapir 27
tarsier 25
Tasmanian devil 20-21
thrushes 19
tiger 7, 29
tits 19
toad,
 fire-bellied 8
 midwife 8
 Surinam 8
toads 8-9
tortoises 6, 10-11
toucan 18-19
trogon 19
tuatara 11
turtles 7, 10-11

UV

ungulates 26-27
venom 13, 21, 23
vertebrates 6-9, 14
vicuña 27
vipers 13
vole 23
vulture 14, 17

WXZ

wallaby 20-21
warblers 6, 19
warthog 27
waterfowl 16-17
weasels 28-29
wildebeest 26, 29
wolf 29
wombat 20-21
woodpecker 15, 19
wren 19
xenarthrans 22-23
zebra 26-27