

***Definition:*** Birds are warm-blooded, egg-laying animals, most of which are able to fly. Their features include feathers, powerful wings, and hollow bones.

BIRDS



# What is a BIRD?

Birds are warm-blooded vertebrates, but they differ from other vertebrates in having feathered wings and bills instead of toothed jaws. Most can fly, and their bodies are specially adapted for this purpose.



## FACTFILE

There are almost 10,000 species of birds. They can loosely be split into groups of similar birds, including the following:

- **Flightless birds**, such as ostriches, rheas, emus, and penguins.
- **Waterbirds**, such as swans, ducks, and geese, live on coasts, estuaries, or riverbanks.
- **Waders, gulls, and auks** live close to the coast and in wetlands.
- **Birds of prey**, such as falcons, vultures, and eagles, are expert predators.
- **Owls**, unlike birds of prey, are well adapted for hunting at night.
- **Fruit and nectar eaters**, such as toucans and parrots.
- **Passerines, perching birds, or songbirds**, the largest group of birds.

## FEATHERS

Feathers are formed from the same material as mammal hair—keratin—and they play an important role in protecting a bird from water and temperature changes. Flying birds have four different types of feathers: down, contour, tail, and wing.



Blue and yellow macaw  
*Ara ararauna*



▲ DOWN FEATHERS are soft and form a warm underlayer.

▲ CONTOUR FEATHERS are small and provide a smooth covering over the body.

▲ TAIL FEATHERS can be very elaborate. They are used for flying, steering, and display.

▲ WING FEATHERS are the flight feathers. They are long and rigid, providing the lift required for flight.

## LIVING DINOSAURS

Many scientists now believe that birds are related to dinosaurs because some dinosaurs

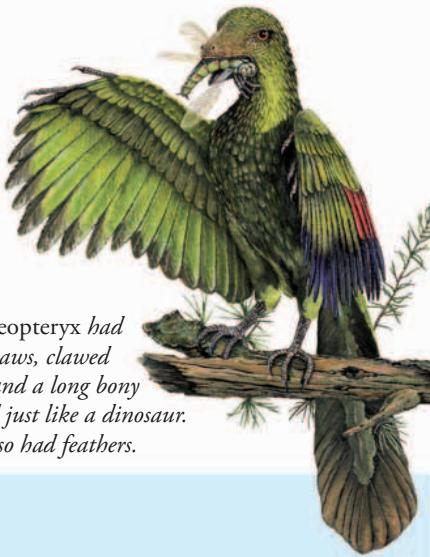


appear to have a mix of bird and reptile characteristics.

► One of the earliest known birds was the pigeon-sized Archaeopteryx, which appeared about 150 million years ago.

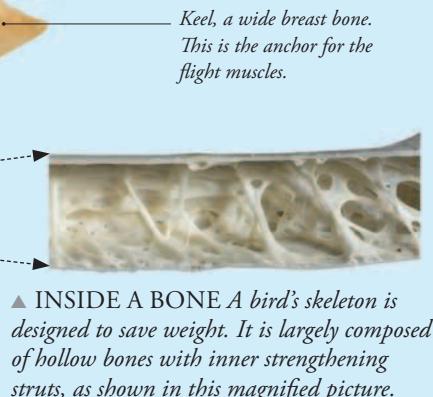
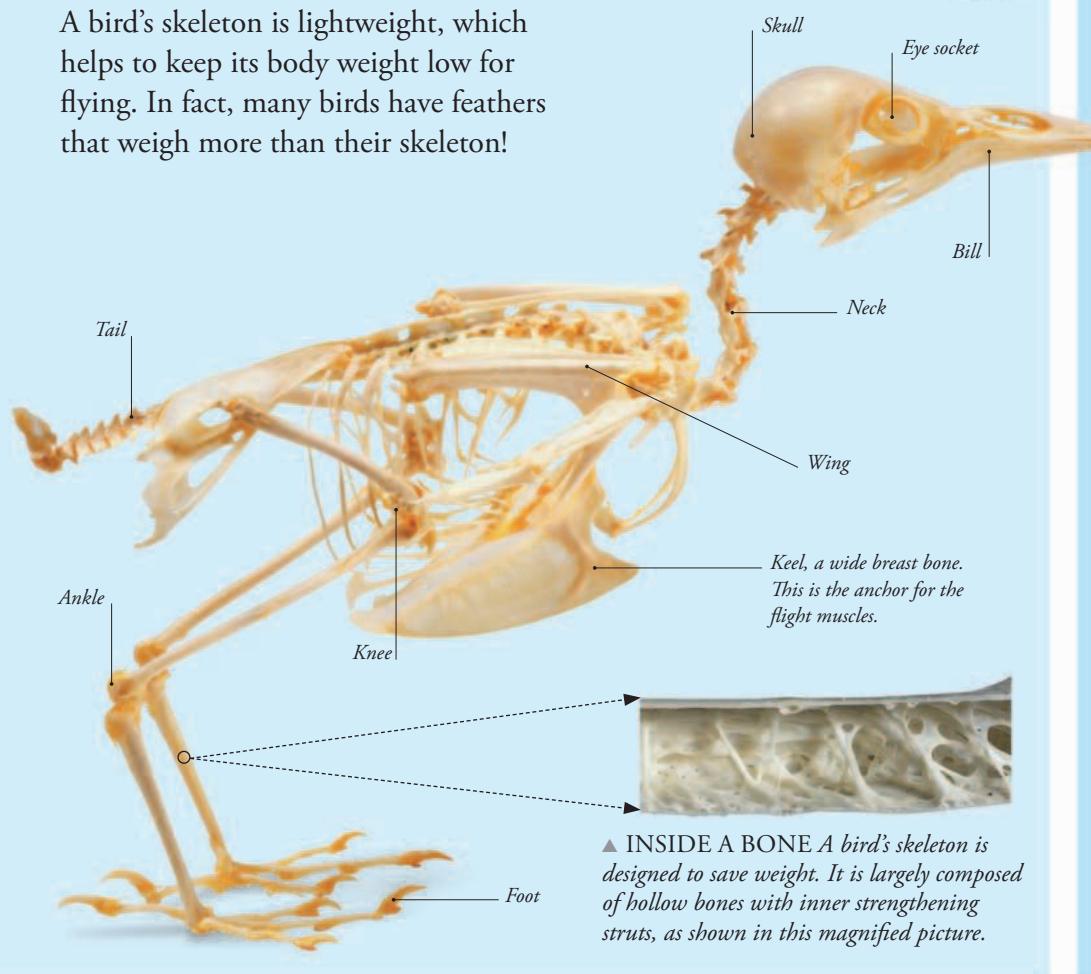
Fossilized Archaeopteryx

► Archaeopteryx had toothed jaws, clawed fingers, and a long bony tail—all just like a dinosaur. But it also had feathers.



## BONES FILLED WITH AIR

A bird's skeleton is lightweight, which helps to keep its body weight low for flying. In fact, many birds have feathers that weigh more than their skeleton!



► INSIDE A BONE A bird's skeleton is designed to save weight. It is largely composed of hollow bones with inner strengthening struts, as shown in this magnified picture.

## THE SHAPE OF A BILL



► FINCHES are seed eaters and have a short, cone-shaped bill that is ideal for pecking up fallen seeds.



► HUMMINGBIRDS have long, narrow bills just perfect for extracting nectar from flowers.



► PARROTS have powerful bills, with a sharp hook to break into nuts and peel back fruit skins.



► HERONS have a long, strong, pointed bill to catch fishes. They don't spear the fish, but catch it in the bill.



► EAGLES have sharp, hooked bills, which help them to tear up the prey they grasp in their talons.

**Nests** Most birds build nests in which to lay their eggs. Nests are made from a huge variety of materials.



WOVEN GRASS NEST

**Eggs and young** Birds lay eggs, which hatch as chicks. These chicks are dependent on their parents for food and protection.



CHICK HATCHING

**Preening** Birds frequently clean and tidy their feathers to keep them in good condition. They waterproof the feathers with oil that they take from a gland at the base of the tail.



FEATHER CARE



# A *world* of birds

There are about 10,000 species of birds with a huge variety of size, color, and habitat. They all have wings and feathers, but not all of them can fly. Flightless birds include the ostrich, which runs fast on powerful legs. Penguins use their wings as flippers to speed through the water.



## 7 North Island brown kiwi *Apteryx mantelli*





# Birds of a feather

Not all birds can fly. These big birds are too heavy and they have small wings. Instead, they race across open countryside on their strong legs. But how can you tell an emu from an ostrich or a rhea from an emu? For a start, they come from different parts of the world.

I am  
the **largest** bird.

Ostriches are the world's largest bird. They are also unlike other birds in having just two toes on each foot.

The legs are powerful and are used for defense to kick out at a predator if necessary.

OSTRICHES PREFER to live in groups and are rarely found on their own. In common with rheas and emus, the male bird usually cares for the eggs and chicks.



## Ostrich

*Struthio camelus*

40



- **Height** 7–9 ft (2–2.8 m)
- **Weight** Up to 220–350 lb (160 kg)
- **Speed** Up to 45 mph (70 kph)
- **Location** W. to E. Africa (south of Sahara), southern Africa

This is the **world's largest and heaviest bird**—it is also the fastest runner. Powerful legs help to propel it forward by up to 16 ft (5 meters) at a time, and once it begins to run it can keep going for about 30 minutes. It feeds on plants (from which it gets water), insects, and lizards. Small stones are swallowed to help digestion.



## Common rhea

*Rhea americana*

33



- **Height** 3–5 ft (1–1.5 m)
- **Weight** 33–66 lb (15–30 kg)
- **Speed** Up to 37 mph (60 kph)
- **Location** South America

The rhea is also known as **the American ostrich** as it looks similar but it is actually about half the size. Rheas live in groups of about six individuals. They eat broad-leaved plants, seeds, fruit, insects, lizards, and small snakes. A male bird mates with up to 12 females then builds one nest for all of the eggs.



*The MALE looks after the eggs, and then the newly hatched young, and he will charge at anything that goes near, including the mothers.*

## Emu

*Dromaius novaehollandiae*

40



- **Height** 5–6 ft (1.5–1.9 m)
- **Weight** Up to 130 lb (60 kg)
- **Speed** Up to 30 mph (50 kph) with a 10 ft (3 m) stride
- **Location** Australia

**Australia's biggest bird**, the emu, has drooping, furlike feathers and small wings. It is named after the Portuguese word *ema*, meaning “large bird.” Flocks may contain dozens of birds. They eat berries, seeds, and insects, and peck seeds from animal droppings.



# Birds of prey

Most of these meat-loving birds are skilled hunters, although vultures leave the killing to others, then feast on their leftovers. A bird's prey depends on its size. Some species target insects and worms; others can tackle a lamb or a young deer.

## Family groups

There are just over 300 different species of birds of prey (also called raptors). They are divided into five groups or families:

- **Eagles, hawks, kites, harriers, and Old World vultures**
- **Condors and New World vultures**
- **Ospreys**
- **Falcons**
- **Secretary bird** This family is unusual as it has just one member.

► **STOOPING** Falcons spot their prey from high up in the sky, then dive down on it in a "stoop." Peregrine falcons reach speeds of up to 155 mph (250 kph) when stooping.

## FACTFILE

■ **Key features:** Most have a large head and large eyes with excellent vision. (It is thought that they can see four times as much detail as a human!) Many also have a keen sense of smell and very good hearing. Almost all have a powerful, hooked bill and strong feet, with sharp talons that they use to kill.

■ **Size:** The smallest, the falconets of Southeast Asia, are about the size of a sparrow, while condors can weigh up to 27 lb (12.25 kg) with a wingspan of just over 10 ft (3 m).



Size comparison

## Peregrine falcon

*Falco peregrinus*



15

- **Length** 13–20 in (34–50 cm)
- **Weight** 1–3½ lb (0.5–1.5 kg)
- **Diet** Other birds
- **Location** Worldwide (except Antarctica)

► **FOOD PASS** Male kestrels hunt for food, but the female carries it home. She flies up to him, so he can drop his prey into her open beak. Then she flies off to feed their young.



The peregrine is **one of the fastest moving animals** on Earth and one of the largest falcons. Females are almost twice the size of males, but both sexes are swift, efficient killers, chasing and swooping down on their prey. They are popular birds for falconry.



## Golden eagle

*Aquila chrysaetos*

30



- **Length** 29½–35 in (75–90 cm)
- **Weight** 6½–14 lb (3–6.5 kg)
- **Diet** Birds, reptiles, and small mammals
- **Location** Europe, North America, Asia, North Africa

An impressive wingspan of 7½ ft (2.3 m) helps this bulky bird to soar elegantly across the sky, ready to swoop down on any prey it spots. It is often seen from a distance, but close encounters are rare. Its name comes from the **golden-brown feathers** around its neck.



## White-backed vulture

*Gyps africanus*

20



- **Height** 3 ft (94 cm)
- **Weight** 8¾–15 lb (4–7 kg)
- **Diet** Freshly dead animals (carrión)
- **Location** Central and southern Africa

Despite its size, this large bird **can be rather timid** compared with other scavengers. It will wait for others to open up a fresh carcass and is often pushed to one side when jostling for a share of the meat.



## Secretary bird

*Sagittarius serpentarius*

15



- **Length** 4–5 ft (1.3–1.5 m)
- **Weight** 5½–10 lb (2.5 kg–4.5 kg)
- **Diet** Snakes, insects, and small rodents
- **Location** Central and southern Africa

Unlike any other bird of prey, this one has amazingly long legs. It **runs very fast** and chases its prey, which it stamps on when caught, digging in with its sharp talons.

## Northern goshawk

*Accipiter gentilis*

20



- **Height** 19–28 in (48–70 cm)
- **Weight** 2¼–3¼ lb (1–1.5 kg)
- **Diet** Birds, reptiles, and small mammals
- **Location** Europe, North America, Mexico, Asia

This bird is a **bold and cunning** hunter. Often it sits well hidden in a tree, ready to pounce on any unsuspecting prey that is passing by. It will happily tackle a large crow or a hare.

## Osprey

*Pandion haliaetus*

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- **Height** 5–5½ ft (1.5–1.7 m)
- **Weight** 3¼–4½ lb (1.5–2 kg)
- **Diet** Fishes
- **Location** Worldwide (except Antarctica)

This bird is perfectly **designed to catch fishes**. It hovers patiently over lakes and rivers, waiting for a fish to swim close to the surface. Then it plunges in at lightning speed and grasps its prey firmly with its sharp claws. Talons that can move to grip both sides of the fish and small spines on the soles of the bird's feet help it to hold on to its catch.

## Andean condor

*Vultur gryphus*

50



- **Length** 3½–4½ ft (1–1.3 m)
- **Weight** 24–33 lb (11–15 kg)
- **Diet** Freshly dead animals (carrión)
- **Location** W. South America

This huge black vulture has the **largest wings** of any bird.

It can hover around for hours, constantly on the lookout for freshly killed meat left by hunters and other animals. Deer and cattle are favorite foods. Males are bigger than females, unlike most birds of prey, and have a fleshy comb along the top of their head.

## Southern caracara

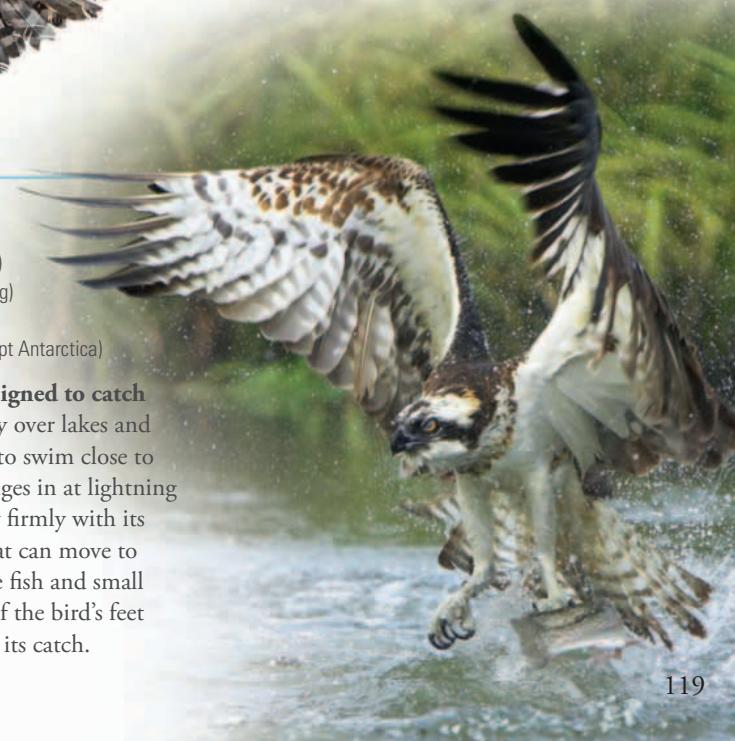
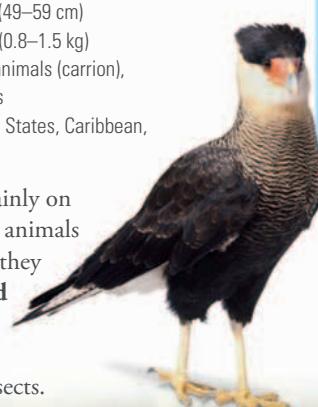
*Caracara plancus*

20



- **Height** 19½–23 in (49–59 cm)
- **Weight** 1¾–3¾ lb (0.8–1.5 kg)
- **Diet** Freshly dead animals (carrión), insects, and small birds
- **Location** S. United States, Caribbean, South America

Caracaras feast mainly on the leftovers other animals leave behind. But they will also **steal food** from other birds, raid nests, and peck at passing insects.

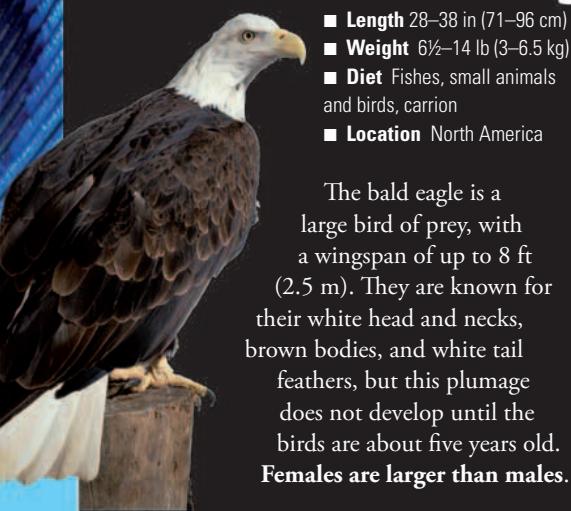


## Bald eagle

*Haliaeetus leucocephalus*



- **Length** 28–38 in (71–96 cm)
- **Weight** 6½–14 lb (3–6.5 kg)
- **Diet** Fishes, small animals and birds, carrion
- **Location** North America



The bald eagle is a large bird of prey, with a wingspan of up to 8 ft (2.5 m). They are known for their white head and necks, brown bodies, and white tail feathers, but this plumage does not develop until the birds are about five years old.

**Females are larger than males.**



▲ **NESTING** Bald eagles pair up for life, building a large nest in a tree or on the ground, which they will return to year after year, adding material each time. They will lay between one and three eggs a year, with both male and female tending them, but not all the chicks will survive.



▲ **FIGHTING FOR FOOD** Bald eagles will fight others for their food; it is sometimes easier to steal another bird's catch than hunt for their own. This happens more in winter, when food can be scarce.

# Bald eagle

This eagle is named after its white head, though it is not bald: the head and neck are feathered. It is famous for being the national bird of the US (since 1782), and it has been protected in North America since 1940. Its Latin name means "sea eagle."

### TIME FOR FISHING

The bald eagle is built to fish. Keen eyesight allows it to spot fishes, helped on sunny days by the fact that its eyes have a bony ridge just above them to shade out the Sun. Once grasped, a fish has no chance; a hind talon on each foot pierces the fish's body, while it is held securely by long front talons. It is a killer grip!





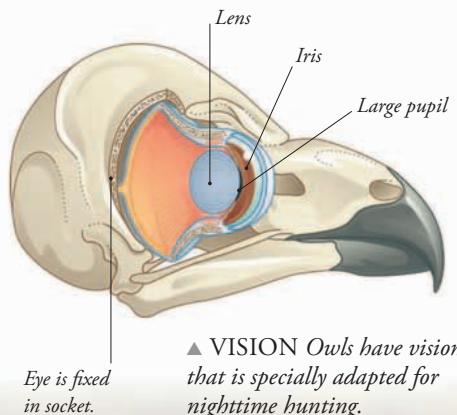
▲ A BALD EAGLE can lift about half its weight. If a fish proves too heavy, the bird will swim to shore, using its immense wings as oars since it is unable to release the fish. However, occasionally a fish has proved so large it has pulled the eagle under and the bird has drowned.

# Silent owls

This group of birds has mastered the skill of night hunting. Especially soft feathers mean they can swoop down almost silently on their unsuspecting prey, while hooked beaks and sharp talons help them to catch and kill very quickly.

## AN OWL'S SKULL

This diagram of an owl's skull shows how large the eyeball sockets are. Large eyes help the owl to see at night. However, an owl cannot move its eyes around. If it needs to look to the side, or even behind, it has to turn its whole head, an unusual ability in the animal world.



▲ VISION Owls have vision that is specially adapted for nighttime hunting.



▲ CARE Owls are attentive parents. Between one and five young are looked after in a cavity or tree hole, with the male bringing food and the female staying nearby.



◀ PELLETS Owls usually swallow an animal whole, and then regurgitate the indigestible fur, bones, and claws in the form of a pellet.

▼ FLIGHT An owl flies fairly low—and silently.



## FACTFILE

- **Number of species:** More than 200.
- **Key features:** Sharp talons, hooked bill, head that can swivel around, large eyes, soft plumage. Swallow prey whole and produce pellets containing the indigestible parts.

- **Size:** The largest is the eagle owl (*Bubo bubo*) at up to 28 in (70 cm) in length. The smallest is the least pygmy owl (*Glaucidium minutissimum*) at 4¾ in (12 cm) in length.



Size comparison

## Snowy owl

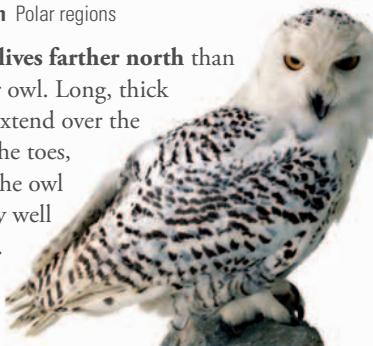
*Nyctea scandiaca*



10

- Height 22–27½ in (55–70 cm)
- Weight 2¼–5½ lb (1–2.5 kg)
- Diet Lemmings, rabbits, hares, waterfowl
- Location Polar regions

This owl **lives farther north** than any other owl. Long, thick feathers extend over the bill and the toes, keeping the owl incredibly well insulated.



## Spectacled owl

*Pulsatrix perspicillata*



30

- Height 17–20½ in (43–52 cm)
- Weight 21–35 oz (600–1,000 g)
- Diet Small mammals, insects, crabs
- Location S. Mexico to C. South America

With the **ring of white feathers** around its eyes, it's easy to see where this owl gets its name from. It usually makes its home in dense rain forest.



## Great horned owl

*Bubo virginianus*



28

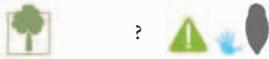
- Height 20–23½ in (50–60 cm)
- Weight 1½–5½ lb (675–2,500 g)
- Diet Small mammals, insects, reptiles, amphibians, birds
- Location North, Central, and South America

This owl has an **instantly recognizable hoot**. It will choose a favorite perch, and when it spots its prey will swoop silently down to snatch it up. Females lay between one and five eggs, and both the male and female will care for the young for at least six weeks after hatching. It is the largest American owl.



## Pel's fishing-owl

*Scotopelia peli*



- Height 22–25 in (55–63 cm)
- Weight 4½–5½ lb (2–2.5 kg)
- Diet Fishes and frogs
- Location Africa

As its name suggests, **this owl feeds on fishes**, in addition to frogs and any other freshwater animals that it can catch. It helps an animal to live near its food source, so the fishing-owl's nest is always found in a tree hole at the edges of lakes, rivers, swamps, and marshes. Long, curved talons help it to grasp and hold onto its usually slippery prey.



## Barn owl

*Tyto alba*



5

- Height 11½–17 in (29–44 cm)
- Weight 11–23 oz (300–650 g)
- Diet Small rodents
- Location North, Central, and South America, Europe, Asia, Africa, Australia

This owl is the **most widespread** of all owls, and is found on all continents except for Antarctica. It nests in a hollow tree, or an abandoned building. It has a shriek rather than a hoot.



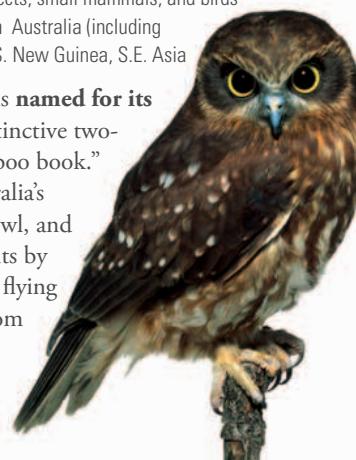
## Southern boobook

*Ninox novaeseelandiae*



- Height 12–14 in (30–35 cm)
- Weight 5–6 oz (150–175 g)
- Diet Insects, small mammals, and birds
- Location Australia (including Tasmania), S. New Guinea, S.E. Asia

This owl is **named for its cry**, a distinctive two-syllable "boo book." It is Australia's smallest owl, and often hunts by snatching flying insects from the air.



## Common scops-owl

*Otus scops*



7

- Height 6½–8 in (16–20 cm)
- Weight 2–4 oz (60–125 g)
- Diet Insects, spiders, worms, bats, small birds
- Location Europe to C. Asia, Africa

This owl is hard to spot since its plumage allows it nearly to vanish when motionless against a background of tree bark. It will even sway, if surprised, to imitate a branch moving in the wind! **Its call is a low whistle**, not a hoot.



# Gamebirds

The birds in this group usually live on the ground in a wide variety of habitats. Wild gamebirds, such as grouse and pheasants, have long been a food source for humans and hunted for sport, while their domestic relatives, such as chickens, are a valuable source of meat and eggs.

◀ SHORT SPRINT A ring-necked pheasant launches into flight to escape from a predator. The strong flight muscles can support short bursts of speed but are useless for longer distances.

## FACTFILE

- **Number of species:** 280
- **Key features:** Gamebirds are mainly ground-dwellers. The cocks (males) of many species have spectacular plumage or brightly colored patches of bare skin, while the hens (females) are usually very dull in color. The cocks perform elaborate courtship displays to attract hens. Many gamebirds use camouflage to escape detection by predators.



The numbers show where the birds featured opposite are found.



FEATHER FAN A peacock fans out his train of feathers to attract a peahen during courtship. He shakes the fan of erect feathers during the display to add to the effect.

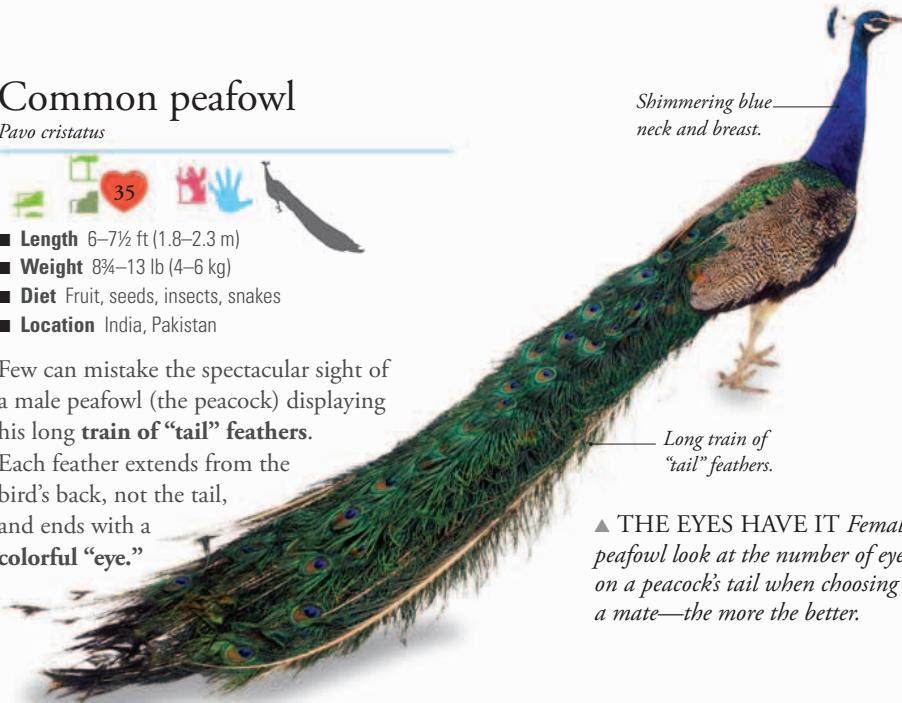
## Common peafowl

*Pavo cristatus*



- Length 6–7½ ft (1.8–2.3 m)
- Weight 8¾–13 lb (4–6 kg)
- Diet Fruit, seeds, insects, snakes
- Location India, Pakistan

Few can mistake the spectacular sight of a male peafowl (the peacock) displaying his long **train of “tail” feathers**. Each feather extends from the bird’s back, not the tail, and ends with a **colorful “eye.”**



Shimmering blue neck and breast.

Long train of “tail” feathers.

▲ THE EYES HAVE IT *Female peafowl look at the number of eyes on a peacock’s tail when choosing a mate—the more the better.*

## Temminck’s tragopan

*Tragopan temminckii*



- Length 25 in (64 cm)
- Weight Not recorded
- Diet Plants, insects
- Location C. and S.E. Asia



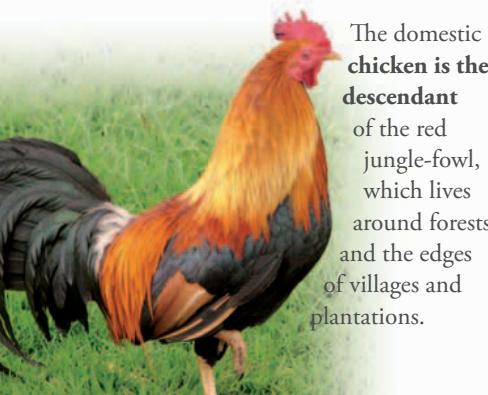
During courtship, the cock **inflates his blue and red throat wattle**, which looks like a brightly colored bib. If this show of strength impresses a hen, the pair will mate. The cock **mates with lots of hens** but plays no part in rearing his young.

## Red jungle-fowl

*Gallus gallus*



- Length 32 in (80 cm)
- Weight 1–3¼ lb (0.5–1.5 kg)
- Diet Mainly seeds and small insects
- Location C. and S.E. Asia



The domestic **chicken is the descendant** of the red jungle-fowl, which lives around forests and the edges of villages and plantations.

## Gunnison sage-grouse

*Centrocercus minimus*



- Length 18–22 in (46–56 cm)
- Weight 2–5½ lb (1–2.5 kg)
- Diet Plants, insects
- Location Colorado, US

This sage-grouse has two yellow air sacs on its chest that it uses to make **popping sounds** during courtship. They also make **swishing noises** by brushing their wings against their stiff, white chest feathers.

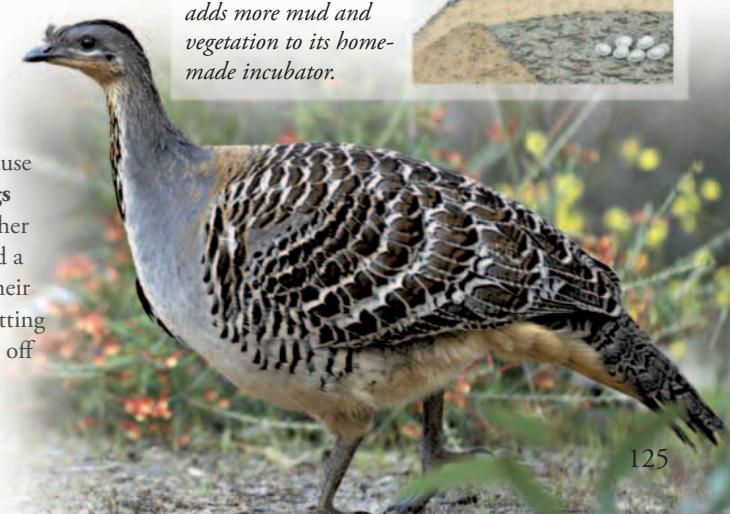
## Malleefowl

*Leipoa ocellata*



- Length 24 in (60 cm)
- Weight 4½ lb (2 kg)
- Diet Buds, fruits, seeds and the odd insect and spider
- Location S.W. Australia

Malleefowl are unusual because they **do not lie on their eggs** to keep them warm. Like other megapodes, these birds build a **natural incubator**, laying their eggs in a pile of mud and rotting plant matter. The heat given off keeps the eggs warm.



### ► EGG COMPOST

If the eggs get too cold, the malleefowl adds more mud and vegetation to its home-made incubator.



## Willow ptarmigan

*Lagopus lagopus*



- Length About 15 in (38 cm)
- Weight 20–25 oz (550–700 g)
- Diet Mosses, lichens, berries; chicks also eat insects
- Location N. Northern hemisphere



These are hardy gamebirds, with **feathery legs** to insulate them from the cold winter. Most of these birds turn from reddish brown to white in winter as camouflage, but willow ptarmigan from Scotland (known as red grouse) are an exception.

## Common pheasant

*Phasianus colchicus*



- Length Up to 36 in (90 cm)
- Weight 1¾–4½ lb (0.75–2 kg)
- Diet Plants, insects, small vertebrates
- Location Native to Asia

As one of the **most popular** gamebirds, the common pheasant has been introduced to many countries. Typical of the gamebirds, the cock is much brighter than the hen, with **distinctive red wattles** on the face to attract hens during courtship.



# Seabirds and shorebirds

The birds of sea and shore live in or near the world's oceans. Seabirds spend most of their lives at sea but return to shore to breed. They are strong fliers and some can dive into the sea to catch fishes.

Shorebirds live along the coast. Many have long legs and probing bills to forage beneath the sand and mud for crustaceans, mollusks, and marine worms.



**FEEDING FRENZY** Every May, horseshoe crabs lay their eggs on the shores of the Delaware Bay. The eggs are a feast for hungry shorebirds such as laughing gulls.

## Ivory gull

*Pagophila eburnea*



■ Length 16–17 in (40–43 cm)

■ Weight 16–24 oz (450–700 g)

■ Diet Fishes, marine invertebrates, small mammals, and carrion

■ Location High Arctic, from Canada and Greenland to northern Europe and Russia



Like all gulls, the ivory gull is a **scavenger**. It feeds on the remains left behind by predators such as polar bears. Little else is known about these birds since they live on the edge of the pack ice deep within the Arctic Circle.

## FACTFILE

■ Number of species: Around 350

■ Key features: Usually plain with bright body parts such as eyes or legs; bills come in many shapes and sizes, from long, slender bills used to probe in the mud, to short, compact bills for stabbing at prey; may have salt glands to expel the excess salt from seawater.



The numbers show where the featured animals are found.

## Herring gull

*Larus argentatus*



- Length 22–26 in (55–66 cm)
- Weight 1¾–3¼ lb (0.8–1.5 kg)
- Diet Fishes, invertebrates, small birds, eggs, carrion, and human garbage
- Location Northern hemisphere

These large, noisy gulls are a common sight along coastal regions, but they are also found **further inland**, where they scavenge on garbage dumps and in city centers.

## Ringed plover

*Charadrius hiaticula*



- Length 7–8 in (17–20 cm)
- Weight About 2¼ oz (60 g)
- Diet Mainly marine invertebrates
- Location Breeds in Arctic and northern temperate zones; many migrate to Africa and Asia for the winter

Ringed plovers are small, plump wading birds that **forage for food on beaches**, fields and tidal flats. As these birds tap their feet on the loose sand or mud, tiny marine worms and other invertebrates rise to the surface to be eaten.

## Guillemot

*Uria aalge*



- Length 15–18½ in (38–46 cm)
- Weight 2–2¼ lb (0.9–1 kg)
- Diet Fishes and marine invertebrates
- Location Across the northern hemisphere as far south as Mexico and North Africa

These **expert divers** can descend to depths of 130 feet (40 meters) or more when fishing. Common guillemots gather in **huge breeding colonies** on rocky cliffs and sea stacks. Three weeks after hatching, the chick leaves its nesting ledge and flies out to sea.

## Brown skua

*Catharacta antarctica*



- Length About 24 in (60 cm)
- Weight 3½–4¼ lb (1.6–1.9 kg)
- Diet Fishes, marine invertebrates, small seabirds and their chicks, eggs, carrion
- Location Antarctic and subantarctic zones around the Southern Ocean

In summer, brown skuas breed in sheltered rocky areas on the many islands of the Southern Ocean. The breeding pair **defend their nest fiercely**, flying at the heads of intruders with claws outstretched. The birds fly north in winter, spending a lot of time at sea.



## Avocet

*Recurvirostra avosetta*



- Length 16–18 in (40–45 cm)
- Weight About 14 oz (400 g)
- Diet Insects and crustaceans
- Location Europe, Africa, and Asia

When feeding, the distinctive avocet sweeps its **slender, upturned bill** from side to side through the water. Many avocets winter in southern Africa and Asia and then migrate north in the summer to breed.

## Atlantic puffin

*Fratercula arctica*



- Length 10–12 in (25–30 cm)
- Weight 12–19 oz (340–540 g)
- Diet Mainly small fishes
- Location High Arctic to the Mediterranean, depending on the season

The **large, colorful bill** of the Atlantic puffin can hold a vast number of small fishes such as capelin and sprat. When feeding, these striking seabirds gather in large groups, called rafts, a few miles offshore.

## Common oystercatcher

*Haematopus ostralegus*



- Length About 17 in (42 cm)
- Weight About 19 oz (540 g)
- Diet Marine worms and shellfish
- Location Europe, Africa and Asia

Shellfish such as limpets and mussels are a favorite food for these striking birds, but they do **eat oysters** when they find them. They use their bright bills to prise the two halves of the shell apart and stab at the soft parts inside.



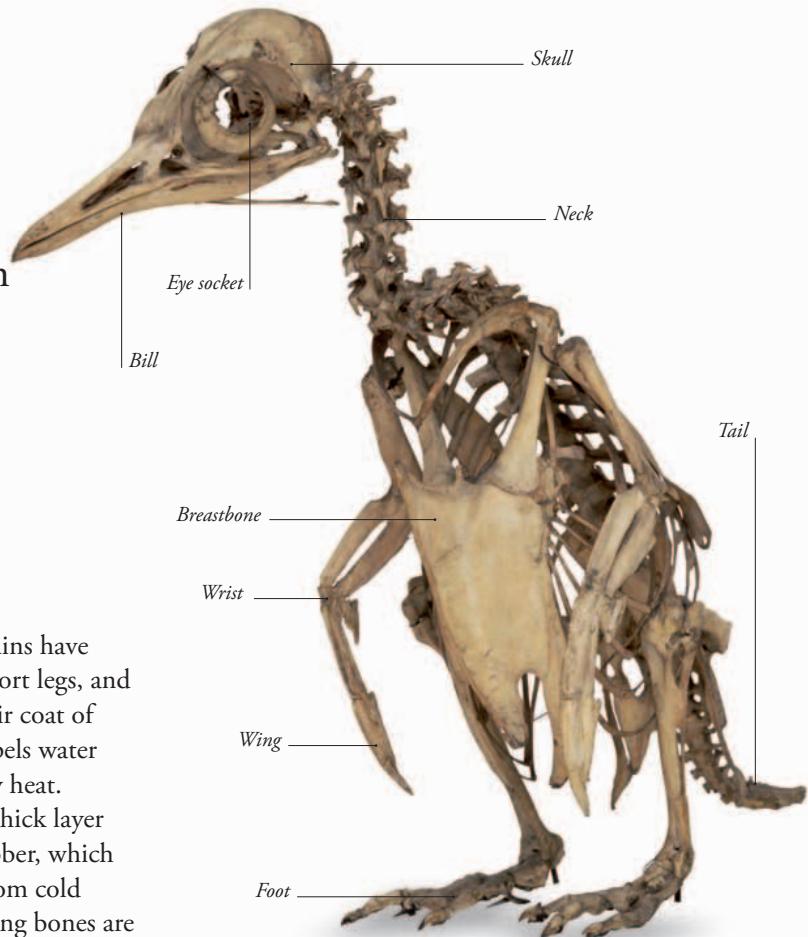
# Penguins

These flightless birds are found only in the seas and cold currents of the southern hemisphere. Penguins are fast, graceful swimmers, but on land they waddle awkwardly. To speed up a long journey over snow and ice, penguins sometimes toboggan on their bellies.

## LIVING IN COLONIES

Penguins spend a lot of their lives in water hunting for food. However, most species come on land in the warmer months to live in colonies and breed. Colonies can be made up of hundreds of thousands of birds. Penguins communicate by calls and visual displays when they are gathered in large groups.

**Anatomy** Penguins have plump bodies, short legs, and webbed feet. Their coat of dense feathers repels water and traps in body heat. Penguins have a thick layer of fat, called blubber, which insulates them from cold weather. Their wing bones are flattened to form flippers and solid to increase strength.



PENGUIN SKELETON



King penguin  
*Aptenodytes patagonicus*

**DIVING** Penguins can dive down to about 950 ft (290 m), flapping their wings to provide power. Some species can swim at speeds of 9 mph (14 kph).

## FACTFILE

- **Number of species:** 17–20
- **Key features:** Live in colonies; fast swimmers.
- **Diet:** Fishes, krill, and squids
- **Largest:** Emperor penguin, up to 45 in (115 cm) in height.
- **Smallest:** Little penguin, up to 18 in (45 cm) in height.



Little and emperor penguins



The numbers show where the featured animals are found.

## Emperor penguin

*Aptenodytes forsteri*

20



- Height 43–45 in (110–115 cm)
- Weight 77–88 lb (35–40 kg)
- Location Southern Ocean, Antarctica

Emperor penguins are the only penguins to breed during the harsh Antarctic winter. After laying her single egg, the female goes back to the sea. Her **male partner looks after the egg for two months**, holding it on his feet beneath a flap of belly skin. All the males huddle together in a group to keep warm during winter storms. The females return to feed the chicks when they hatch.



**FLUFFY** The gray down of emperor chicks is not waterproof, so they cannot go in the sea.

## Little penguin

*Eudyptula minor*

20



- Height 16–18 in (40–45 cm)
- Weight 2½ lb (1 kg)
- Location S. and S.E. Australia, New Zealand, Tasman Sea, and Southern Ocean

This is the **smallest** penguin and the only one that stays offshore in the daytime. Most little penguins live in **sand or soil burrows**, but some make their homes among fallen rocks or under houses and sheds.



## African penguin

*Spheniscus demersus*

20



- Height 24–28 in (60–70 cm)
- Weight 11 lb (5 kg)
- Location S.W. coast of Africa, Namibia

Also called the jackass penguin, this penguin **breeds in Africa**, coming ashore to nest in **burrows**. Over-fishing and oil spills have caused a shortage of food for the African penguin.



## Galápagos penguin

*Spheniscus mendiculus*

20



- Height 19–21 in (48–53 cm)
- Weight 4½–5 lb (2–2.5 kg)
- Location Galápagos Islands and Isabela Island

Galápagos penguins are **among the rarest** species of penguin. They live the farthest north and because of this they struggle to keep cool. To help heat escape from their bodies they **hold out their wings**.



## Gentoo penguin

*Pygoscelis papua*

20



- Height 30–35 in (75–90 cm)
- Weight 19 lb (8.5 kg)
- Location Subantarctic islands

No other penguin can swim as **fast under water** as a gentoo penguin. These birds make their nests from stones and twigs piled up in a circular shape. They guard their property jealously. Arguments frequently break out in a gentoo colony because one bird has stolen a pebble from another's nest. The **chicks are cared for by both parents**.

## Royal penguin

*Eudyptes schlegeli*

11



- Height 28 in (70 cm)
- Weight 13 lb (6 kg)
- Location Antarctica

This is one of several species of penguin known as **crested penguins** that have plumes on their heads. A **female royal penguin lays two eggs**. The first egg, which is small, is kicked out of the nest. The reason for this is unknown.



## Humboldt penguin

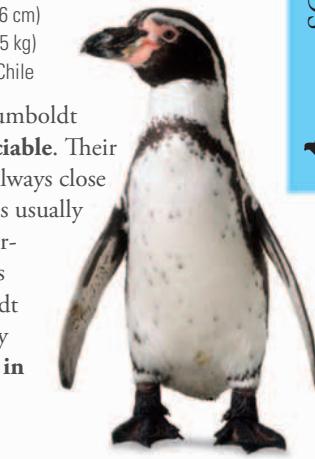
*Spheniscus humboldti*

20



- Height 22–26 in (56–66 cm)
- Weight 10–11 lb (4.5–5 kg)
- Location Peru and N. Chile

Like all penguins, Humboldt penguins are very **sociable**. Their nesting burrows are always close together and the birds usually hunt in a group. Over-fishing in the area has reduced the Humboldt penguins' food supply and caused a **decline in their numbers**.



# The *wandering* albatross

The wandering albatross is the world's largest seabird, with an incredible wingspan that can reach 11 ft (3.5 m). Albatrosses spend much of their long life soaring over the sea, on trips that cover thousands of miles.

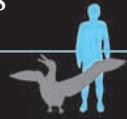
They come on land to breed.



GROWTH Albatrosses take about nine years to mature into adults, before they seek a mate. They will pair up for life.



## Wandering albatross

*Diomedea exulans*

- **Height** 3½ ft (1.1 m)
- **Weight** 18–25 lb (8–11.5 kg)
- **Diet** Fishes and squids
- **Location** Circumpolar around Antarctica

Although the wandering albatross has a large wingspan, each wing is actually just 9 in (23 cm) at its widest point. **Long narrow wings** allow the bird to glide on air currents with ease.



## CONSERVATION

Several species of albatross are under threat. Many have been accidentally killed when caught on baited fishhooks, while others have lost eggs to foxes or rats. Efforts are now being made to protect them.



▲ **NESTING** An albatross lays a single 4 in (10 cm) long egg in a nest made from mud, grass, and moss. Parents take turns sitting on the egg and will then feed the chick for the first nine months of its life. Albatrosses breed slowly, laying perhaps one egg every second year, so their success depends on the survival of these individual chicks.

## Ready to fly.

A wandering albatross has powerful flight muscles. Albatrosses have been observed following ships across oceans without stopping to rest. One bird traveled 3,700 miles (6,000 km) in 12 days.



# Pelicans and relatives

These large birds include boobies, cormorants, gannets, and frigatebirds as well as the pelicans. Pelicans and their relatives are the only birds with webbing between all four toes, so most are strong swimmers. They all eat fishes, but they catch their food in different ways.

## Brown pelican

*Pelecanus occidentalis*



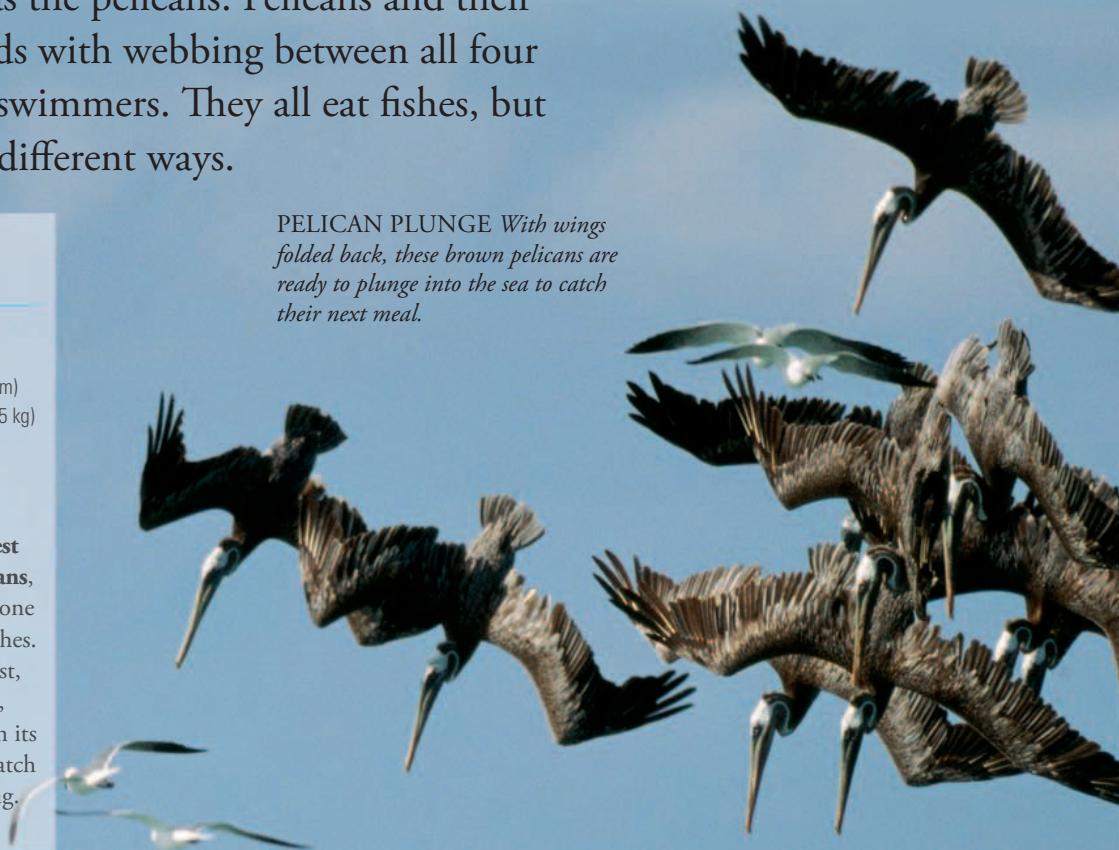
20+



- Length 3½–5 ft (1–1.5 m)
- Weight Up to 12 lb (5.5 kg)
- Diet Mainly fishes
- Location Caribbean and the Americas

This is the **smallest of the eight pelicans**, and it is the only one that dives after fishes. It plunges headfirst, mouth wide open, scooping up fishes in its large throat pouch. The weight of the catch can often prevent the pelican from flying.

**PELICAN PLUNGE** With wings folded back, these brown pelicans are ready to plunge into the sea to catch their next meal.



## FACTFILE

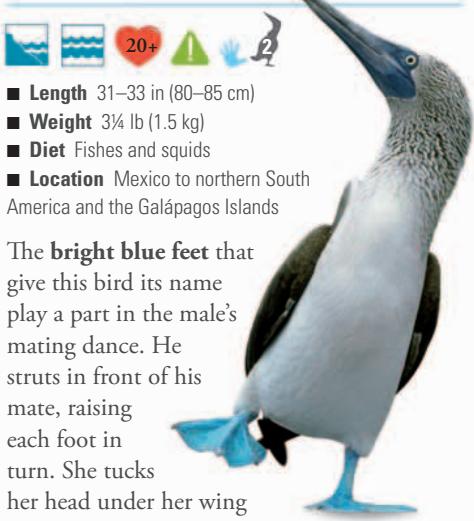
- Number of species: 67
- Key features: Four webbed toes on each foot; diving species have small or closed nostrils (some breathe through their mouths); nest in large colonies.
- Distribution: Found near coastal waters of most seas and oceans; also found around inland waters.
- Diet: Mainly fishes but some will eat crustaceans, mollusks, and other marine invertebrates.



The numbers show where the featured birds are found.

## Blue-footed booby

*Sula nebouxii*



- Length 31–33 in (80–85 cm)
- Weight 3 1/4 lb (1.5 kg)
- Diet Fishes and squids
- Location Mexico to northern South America and the Galápagos Islands

The **bright blue feet** that give this bird its name play a part in the male's mating dance. He struts in front of his mate, raising each foot in turn. She tucks her head under her wing as a sign of approval.

## Brown booby

*Sula leucogaster*



- Length 25–33 1/2 in (64–85 cm)
- Weight 1 1/2–3 1/4 lb (0.7–1.5 kg)
- Diet Fishes and squids
- Location Tropical Pacific, Atlantic, and Indian oceans

The brown booby is an **expert diver**, plunging into the ocean from heights of 100 feet (30 meters). The streamlined shape of the bird helps it to cut through the water to catch its prey. Brown boobies also skim the surface of the ocean, picking off flying fishes as they leap from the water.

## Northern gannet

*Morus bassanus*



- Length 31–43 in (80–110 cm)
- Weight 5 1/2–6 1/2 lb (2.5–3 kg)
- Diet Mainly fishes
- Location North Atlantic and Mediterranean

These gannets spend **most of their lives at sea** but nest in dense colonies on steep rocky cliffs and sea stacks. A pair breed for life, using the same nest year after year.

## Red-billed tropic bird

*Phaethon aethereus*



- Length 31–32 in (78–80 cm)
- Weight 21–29 oz (600–825 g)
- Diet Fishes and squids
- Location Tropical waters of the Atlantic, eastern Pacific, and northern Indian oceans

These small seabirds spend most of their lives hundreds of miles from land, **flying high above the ocean**. Red-billed tropic birds come to land to breed, usually on remote tropical islands. The female lays a single egg on a rocky cliff ledge or directly on the ground. Although they are poor swimmers, these birds plunge-dive from great heights to catch their prey. They are especially fond of flying fishes.

### STREAM AND SCREAM

*These birds flick their tail streamers and make screaming calls in a spectacular, but noisy, aerial courtship display.*

## Great cormorant

*Phalacrocorax carbo*



- Length 31–39 in (80–100 cm)
- Weight Up to 8 lb (3.5 kg)
- Diet Mainly fishes
- Location Eastern North America, Greenland, Eurasia, central to southern Africa

Great cormorants are sleek and streamlined—the **ideal shape for diving and swimming**. These common coastal seabirds can dive to considerable depths, but they often fish in shallow water.

## Great frigatebird

*Fregata minor*



- Length 33–41 in (85–105 cm)
- Weight 2 1/4–3 1/4 lb (1–1.5 kg)
- Diet Fishes and squids
- Location Tropical Pacific, Atlantic, and Indian oceans

During courtship, groups of males shake their wings and inflate their magnificent **scarlet throat pouches** like balloons. The female chooses a mate based on his display.



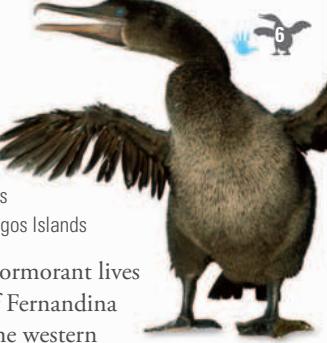
## Galápagos cormorant

*Phalacrocorax harrisi*



- Length 39 in (100 cm)
- Weight 5 1/2–9 lb (2.5–4 kg)
- Diet Mainly fishes
- Location Galápagos Islands

The Galápagos cormorant lives on the islands of Fernandina and Isabela on the western shores of the Galápagos. These birds have **lost the ability to fly**. Instead, they use their powerful legs and webbed feet to swim after squids, octopus, eels, and other small fishes.



## Oriental darter

*Anhinga melanogaster*



- Length 33–38 in (85–97 cm)
- Weight 2 1/4–4 1/2 lb (1–2 kg)
- Diet Fishes
- Location Southern and Southeast Asia

The Oriental darter is often called the **snakebird** thanks to its **long, snakelike head**. This bird swims with its body submerged, but its head and neck above the water.



# Waterbirds

Some of these birds swim and dive, others wade in shallow lakes and swamps or even trot across the water surface on floating plants. Most waterbirds also fly well. Many swans and ducks migrate huge distances every year between their breeding grounds and the regions where they spend the winter.

## FACTFILE

■ **Key features:** Swimming birds such as ducks and swans have webbed feet and waterproof feathers. Some waterbirds feed while they are in the water, either by diving or dabbling for food. Others forage on land.



**HEAD FIRST**  
*Up-ending, known as dabbling, allows ducks and swans to extend their reach when they search for food in the water.*

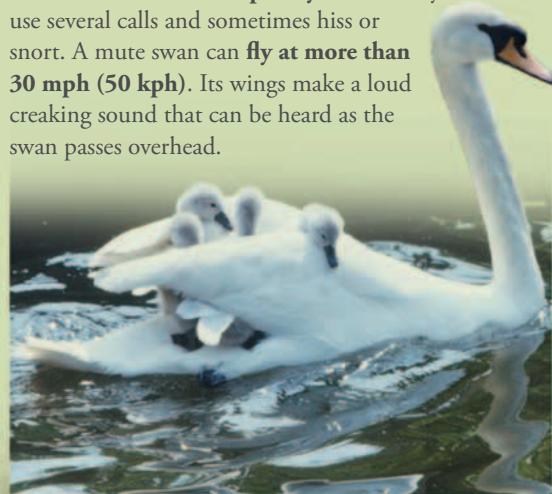
## Mute swan

*Cygnus olor*



- **Height** 4–5½ ft (1.2–1.6 m)
- **Weight** 21–26 lb (9.5–12 kg)
- **Diet** Aquatic plants, small fishes, frogs, insects
- **Location** North America, Europe, Africa, Asia, Australia

Although they make less noise than other swans, mute swans are **not completely silent**. They use several calls and sometimes hiss or snort. A mute swan can **fly at more than 30 mph (50 kph)**. Its wings make a loud creaking sound that can be heard as the swan passes overhead.



LIFTOFF To get its heavy body airborne, the mute swan needs a long runway. The bird launches itself with much inelegant pedaling of feet and flapping of wings.

## Black swan

*Cygnus atratus*



20+



- Height 3½–4½ ft (1.1–1.4 m)
- Weight 11–13 lb (5–6 kg)
- Diet Plants (mainly aquatic)
- Location Australia (including Tasmania), New Zealand

These swans sometimes travel together in colonies numbering many thousands. They usually **nest together**, too, although some breeding pairs may stay apart from the rest. In Europe, black swans are kept as **ornamental** pets.



## Common merganser

*Mergus merganser*



7+



- Height 23–26 in (58–66 cm)
- Weight 3¼–4½ lb (1.5–2 kg)
- Diet Fishes
- Location North America, Europe, Asia

The merganser is an unusual duck because it has a long thin bill with **sharp "sawteeth"** along the edges. This means that the bird can get a firm grip on a slippery fish. Mergansers hunt by putting their heads below the surface of the water and **diving** for their prey.



MALE MERGANSER

## Muscovy duck

*Cairina moschata*



7+



- Height 26–33 in (66–84 cm)
- Weight 4½–8¾ lb (2–4 kg)
- Diet Leaves, seeds, insects, small aquatic invertebrates
- Location Central America, N. South America

Domesticated muscovy ducks are kept all over the world and appear in many color forms. Wild muscovy ducks have **black plumage** with some white feathers in their wings.



## Wattled jacana

*Jacana jacana*



?

- Height 6½–10 in (17–25 cm)
- Weight 3–4 oz (90–125 g)
- Diet Insects, aquatic invertebrates, rice seeds
- Location S. Central America, South America

Big, splayed feet spread this bird's weight and allow it to **walk on floating water plants** without sinking. The female wattled jacana usually takes **several mates**. She lays her eggs in floating nests.



## Mallard

*Anas platyrhynchos*

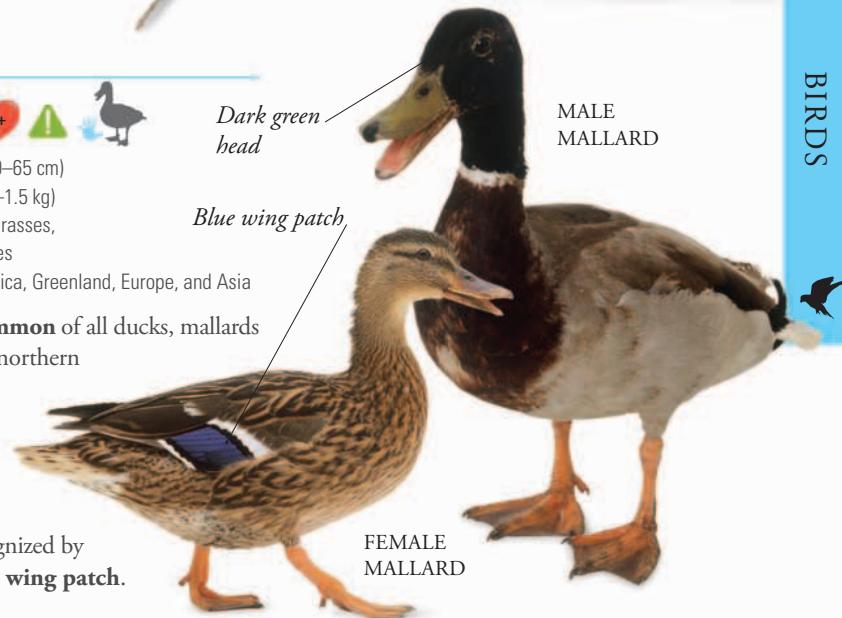


5+



- Height 19½–26 in (50–65 cm)
- Weight 2¼–3½ lb (1–1.5 kg)
- Diet Aquatic plants, grasses, small aquatic invertebrates
- Location North America, Greenland, Europe, and Asia

One of the **most common** of all ducks, mallards are found across the northern hemisphere. Most domestic ducks are descended from the mallard. Both male and female mallards can be recognized by their noticeable **blue wing patch**.



Dark green head

Blue wing patch

MALE MALLARD

FEMALE MALLARD

## Mandarin duck

*Aix galericulata*



8+



- Height 16–19 in (41–49 cm)
- Weight 18–22 oz (500–625 g)
- Diet Plants, insects, snails
- Location N.W. Europe, E. Asia

These ducks are at home both in water and on land. They make their nests high in trees, safe from predators.

The **fantastic plumage** of the male mandarin duck (seen here) has made this bird popular in captivity.



## Great crested grebe

*Podiceps cristatus*



5+



- Height 18–20 in (46–51 cm)
- Weight 1¼–3½ lb (0.6–1.5 kg)
- Diet Fishes, aquatic invertebrates
- Location Europe, Asia, Africa, Australia, New Zealand

The black head feathers and **spectacular frill** of the great crested grebe are displayed to full effect during the bird's courtship ceremony. A pair of grebes perform elaborate **dances in the water** and offer one another gifts of weeds.

## Horned screamer

*Anhima cornuta*



10



- Height 31–37 in (80–95 cm)
- Weight 4½–6½ lb (2–3 kg)
- Diet Leaves, grass, seeds
- Location N. South America

Screamers are **heavily built** birds that look a little like large domestic fowl. The horn that juts out from the head of the horned screamer is, in fact, a **long feather quill**. The bird's calls are hoots and honks rather than screams.

# Migration: *Snow geese*

Some birds fly thousands of miles each year, following “pathways” in the sky that are only visible to them. These snow geese, for example, follow well-established migration routes in search of richer feeding grounds or to return to their nesting grounds.

**WE ARE FAMILY** Snow geese are sturdy birds. They have to be: it can take them more than 10 weeks to reach their nesting grounds, allowing for nighttime rests. They fly in family groups within huge flocks.

BIRDS



## Greater snow goose

*Anser caerulescens atlanticus*



■ Length 27–33 in (69–83 cm)

■ Weight Up to 6 lbs (2.7 kg)

■ Speed Up to 60 mph (95 kph)

■ Location Canada, Greenland, E. North America



This goose is white, aside from the tips of its feathers, which are black. Some birds have a **blue-gray plumage**, and were once thought to be a different species, but they are now known to be the same. Pairs stay together for life.



▲ **V-FORMATION** *Why do migrating birds fly in a V-formation? It means that each bird is flying in the slipstream of the one in front, which is a lot less work and so saves energy. The lead bird changes frequently: it's a tiring place to be!*

► **GRAZING** *Snow geese graze on wetland rich with plant life. They largely feed on aquatic plants, roots, grasses, and grains. They swallow small amounts of sand and grit to help them digest the plants.*



### Why are we “snow” geese?

Snow geese are named for their white coloring, which, when a large flock descends, looks a little like a blizzard of falling snow. Young birds have more gray feathers, flecked with white, which change to white in their first year.

### ANNUAL MOVEMENT

Snow geese breed on the Arctic tundra, but fly some 3,000 miles (5,000 km) south and away from the Arctic winter in September in enormous, noisy flocks, which may number more than 100,000 birds. They return to the Arctic in the following spring.





My feathers  
really **shine**.

A kingfisher's feathers shimmer because they are iridescent. The feathers have a semitransparent layer that scatters light like a soap bubble, so you see the vivid colors reflected back at you.

# Kingfishers and relatives

Kingfishers are famous for their fishing skills, but they have many relatives that live far from rivers and streams. These include bee-eaters, hoopoes, and hornbills. The birds in this group live in woodland habitats around the world.

**FISH KING** *The majestic kingfisher plunges headfirst into the water and grabs its prey in its long, straight bill.*

## FACTFILE

- **Number of species:** 191
- **Key features:** Large heads and bills relative to the size of their compact bodies; legs usually short, with two toes fused near the base of the foot; many have bright plumage; all species nest in holes.
- **Body size:** The largest of these birds are the hornbills at lengths of up to 4¾ ft (1.5 m); the smallest are the todies at lengths of just 4 in (10 cm).



Size comparison

## Common kingfisher

*Alcedo atthis*

- Length 6½–7½ in (16–19 cm)
- Weight 1¼ oz (35 g)
- Diet Mainly fishes
- Location Eurasia, North Africa



Stand by any river or stream in Europe, and you might see a flash of brilliant color as one of these **swift, active birds** flies past. The kingfisher returns to a favorite perch after a catch, striking the head of the unfortunate fish before swallowing it whole.

## Pied kingfisher

*Ceryle rudis*

- Length 10 in (25 cm)
- Weight 3¼ oz (90 g)
- Diet Fishes
- Location Africa, southern Asia, southeast Asia

The **breeding behavior of these birds is rather unusual**. The breeding pair raises the young with the help of up to four other kingfishers. Often the helpers are young from a previous brood, but they may be completely unrelated. These birds are equally at home hunting in fresh water or salt water.



## European bee-eater

*Merops apiaster*

- Length 11–12 in (27–30 cm)
- Weight 2½ oz (75 g)
- Diet Stinging insects
- Location Europe, Central Asia and Africa



As its common name suggests, this brightly colored bee-eater loves to eat stinging insects such as bees, hornets, and wasps. Before swallowing its meal, the bee-eater rubs the insect's tail against a perch and then squeezes the body in its bill to get rid of the sting. These birds **may eat 250 or more stinging insects** in this way every day.

## Great Indian hornbill

*Buceros bicornis*

- Length 5 ft (1.5 m)
- Weight 6½ lb (3 kg)
- Diet Fruits and small vertebrates
- Location Southern and southeast Asia

The **large yellow helmet** on the head of this massive hornbill is called a **casque**. No one knows for sure what purpose the casque serves. It may have developed as a way of attracting a mate, but males have also been known to use it as a battering ram when fighting.



## Southern yellow-billed hornbill

*Tockus leucomelas*

- Length 20–24 in (50–60 cm)
- Weight 9 oz (250 g)
- Diet Fruits and insects
- Location Southern Africa

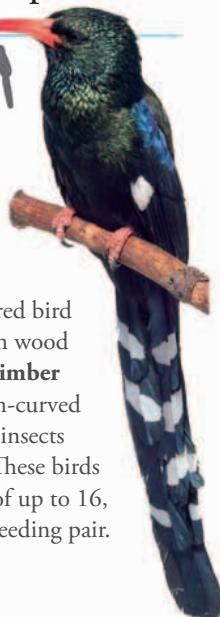


This hornbill is a **common sight on the savanna**, where it forages for insects, spiders, scorpions, and fruits such as figs. These birds team up with dwarf mongooses and act as lookouts, while the mongooses flush out locusts in return for the favor.

## Green wood hoopoe

*Phoeniculus purpureus*

- Length 18 in (44 cm)
- Weight 2½ oz (75 g)
- Diet Insects, earthworms, slugs, snails, and spiders
- Location Sub-Saharan Africa



Yet another brightly colored bird from this group, the green wood hoopoe is an **agile tree climber** that uses its slender, down-curved bill to probe the bark for insects and other invertebrates. These birds live in close-knit groups of up to 16, headed by a dominant breeding pair.

## Blue-crowned motmot

*Momotus momota*

- Length 18½ in (46 cm)
- Weight 5 oz (150 g)
- Diet Mainly insects
- Location Central America to central South America, Trinidad and Tobago

The colorful blue-crowned motmot **perches quietly for most of the day**, swinging its racket-shaped tail feather like a pendulum.



## Laughing kookaburra

*Dacelo novaeguineae*

- Length 16–18 in (40–45 cm)
- Weight 13 oz (350 g)
- Diet Insects, snails, and small vertebrates
- Location Southern Australia (including Tasmania) and New Zealand



What this bird lacks in color it makes up for with its raucous call. The kookaburra is the **largest of the kingfishers** and maintains its bulk by eating a range of small animals, such as frogs, birds, fishes, and snakes.

## Lesser flamingo

*Phoeniconaias minor*



33

lbs

■ Height Up to 3½ ft (1 m)

■ Weight Up to 4½

lbs (2 kg)

■ Plumage Sexes alike

■ Location W. C., and southern Africa

This is the **smallest** flamingo, but it is also the most numerous. Like all flamingos, it likes company: some colonies contain more than one million birds! It feeds at dusk and after dark.



### AN UNUSUAL BILL

Flamingos wade in shallow water to feed, using their feet to stir up the muddy bottom. They feed with their heads almost upside-down, sweeping their specialized bill from side to side to filter out food particles. Large flamingos feed on crustaceans, worms, and mollusks. Small flamingos feed on microscopic algae.



BRINE SHRIMP

**Why so pink?** Flamingos get their pink color from pigments in the food they eat. The pigment is made by algae, which are microscopic plantlike organisms. These are swallowed by the flamingos, or they reach the bird after the flamingo eats brine shrimp that have fed on the algae. It's a mini food chain!

# Flamingos

Flamingos nest in huge, noisy colonies consisting of many thousands of birds. These colorful birds are found in the tropics and subtropics. Their large nests are spaced so each roosting bird cannot quite reach its neighbor; a tactic that helps prevent pecking!





I can sleep  
on **one** leg.

Flamingos will often stand on one leg. It is thought that this helps to lessen the amount of heat lost through the legs and feet.

BIRDS



FLAMINGOS make their nests from flattened cones of mud, and a colony will lay eggs within the same few days. After a week or so, the chicks will join large nurseries.

# Herons and relatives

Lanky legs, snakelike necks, and heavy, stabbing bills are features shared by many of these birds. The group includes storks, egrets, spoonbills, bitterns, and ibises. Most of them live near fresh water and eat fishes. The herons are stealth hunters that wait motionless for prey before making a lightning strike.

## FACTFILE

- **Number of species:** 115
- **Key features:** Most of these birds have splayed toes that enable them both to wade in shallow water and mud, and to stand in trees. They usually live alone, except in the breeding season. The majority are good flyers.



The numbers show where the featured animals are found

▼ **ON THE RUN** The courtship displays of the gray heron include running and prancing with wings held open. The bird's big, rounded wings measure 5 ft (1.5 meters) from tip to tip.

► **GOOD CATCH** The rare great white heron, a color form of the great blue heron, lives only in the Florida Keys.

## American bittern

*Botaurus lentiginosus*



- **Height** 23–34 in (58–86 cm)
- **Weight** 13–18 oz (370–500 g)
- **Location** North and Central America

In the reed beds where it lives, the bittern is disguised by its **striped plumage**. When it is startled, the bird **freezes**, with its head pointing straight upward. This pose makes it even more unnoticeable. However, the bird's booming call means that it is easily heard.

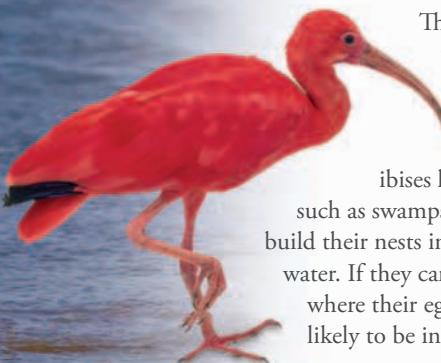


## Scarlet ibis

*Eudocimus ruber*



- **Height** 21½–28 in (55–70 cm)
- **Weight** 21–27 oz (600–750 g)
- **Location** South America



The brilliant feathers of the scarlet ibis get some of their color from pigments in the bird's food. Scarlet ibises like wet, muddy areas such as swamps, but for safety they build their nests in trees well above the water. If they can, they **nest on islands**, where their eggs and chicks are less likely to be in danger from predators.

## Striated heron

*Butorides striata*



- Height 17–20 in (43–50 cm)
- Weight 7–9 oz (200–250 g)
- Location Africa, Asia, Australia, South America

Also known as the green-backed heron, this small, **secretive fish-eater** spends most of its time hidden in dense cover. It sometimes looks for its prey at night. The striated heron is a crafty hunter. It drops **bait**, such as an insect, on the water to attract fish to the surface.



## Shoebill

*Balaeniceps rex*



- Height 4 ft (1.2 m)
- Weight 12–14 lb (5.5–6.5 kg)
- Location East central Africa

The colossal bill of this extraordinary-looking stork is the shape of a wooden clog, hence the bird's name. Sharp-tipped and **saw-edged**, the bill is a fearsome tool for catching prey. A shoebill can **crack the shell of a turtle** or snap off the head of a small crocodile. Shoebills live mostly alone. They pair up to share nest-building and the care of chicks.



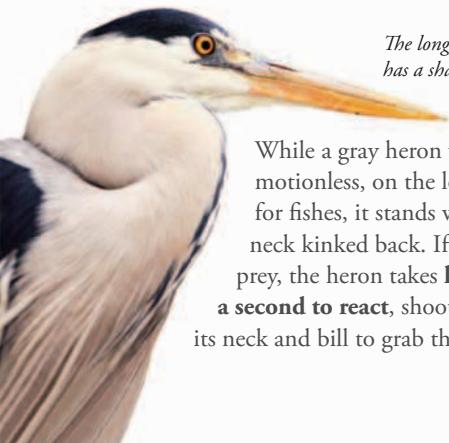
## Gray heron

*Ardea cinerea*



- Height 35–39 in (90–98 cm)
- Weight 3 1/4 lb (1.4 kg)
- Location Europe, Sub-Saharan Africa, Asia

*The long bill has a sharp tip.*



While a gray heron waits motionless, on the lookout for fishes, it stands with its neck kinked back. If it spots prey, the heron takes **less than a second to react**, shooting out its neck and bill to grab the victim.

## Marabou stork

*Leptoptilos crumeniferus*



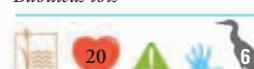
- Height 3 1/2–5 ft (1.1–1.5 m)
- Weight 8 1/4–20 lb (4–9 kg)
- Location Africa

A bald head and neck and **long dangling throat sac** give the marabou stork a most unusual appearance. When it goes courting, the stork uses the throat sac to make calls and grunts. Marabou storks look magnificent in the air, as they have a wingspan of about 10 ft (3 meters). These birds eat almost everything. Fishes, insects, eggs, other birds, and dead animals are all on a marabou stork's menu.



## Cattle egret

*Bubulcus ibis*



- Height 19–21 in (48–53 cm)
- Weight 11 oz (300 g)
- Location Southern Europe, Africa, South East Asia, Australia, Central and South America

Once the cattle egret was found only in Africa, but it has spread into many other regions. In the breeding season, cattle egrets develop **long plumes** on their heads and backs.



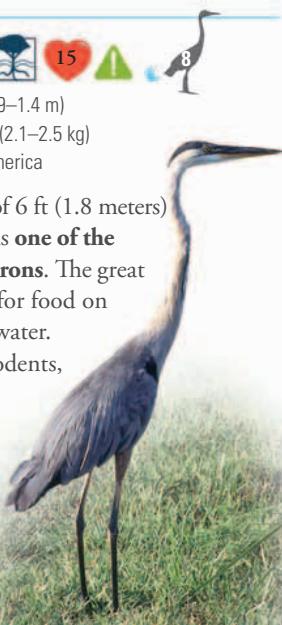
## Great blue heron

*Ardea herodias*



- Height 3 1/2–4 1/2 ft (1.0–1.4 m)
- Weight 4 1/2–5 1/2 lb (2.1–2.5 kg)
- Location North America

With a wingspan of 6 ft (1.8 meters) or more, this bird is **one of the world's biggest herons**. The great blue heron hunts for food on land as well as in water. Its diet includes rodents, lizards, and even snakes. The heron may toss its prey in the air before gulping it down.



## African spoonbill

*Platalea alba*



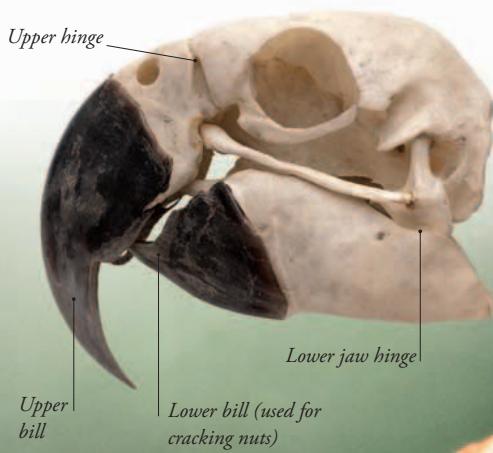
- Height 36 in (90 cm)
- Weight 3 1/2 lb (1.6 kg)
- Location Southern Africa

The African spoonbill goes fishing by **sweeping its bill** from side to side in the water. Its food may include water insects and crustaceans, as well as fishes. The bird traps its prey between the flattened tips of its bill.



# Parrots

With their vivid colors and loud squawks and calls, parrots, and their relatives, are easily recognized. The group includes parakeets, macaws, lorikeets, cockatoos, cockatiels, and budgerigars. Many are popular as pets.



**Versatile bill** A parrot's bill can move far more than you might think. This is because there is a highly flexible hinge joining the bird's upper bill to its skull. Parrots also use their strong, hooked upper bill like an extra foot, to help them grip the branches as they clamber through the trees.

## CONSERVATION

At least a quarter of all parrot species are under threat of extinction. The two main reasons for the decline in the number of parrots living in the wild are loss of their home, especially the tropical rain forests, and being caught by trappers, who capture the parrots for selling on as exotic pets.

## FACTFILE

- **Key features:** Hooked bill, large head, and short neck. Strong feet with sharp claws and two toes pointing forward and two pointing backward for a firm grip.
- **Size:** Smallest are the pygmy parrots (genus: *Micropsitta*), which are about 3 in (8 cm) long. Largest is the Hyacinth macaw at  $3\frac{1}{4}$  ft (1 m) long. **Size comparison**



SCARLET MACAW

**FEEDING** Parrots have flexible feet that they use like hands. They often eat by grasping food with one foot and pulling bits off the food with their sharp, agile bill.

## Red-fan parrot

*Deroptyus accipitrinus*



50+

- Length 14 in (36 cm)
- Weight 7–11 oz (200–300 g)
- Diet Seeds, nuts, fruit, nectar, pollen, insects
- Location N. South America

Most of the time this parrot attracts little attention. But when it is frightened or excited, it raises its **bright red neck feathers** to form a fan that frames its face. This makes the bird look larger and possibly more scary to a potential predator.

## Budgerigar

*Melopsittacus undulatus*

10



- Length 7 in (18 cm)
- Weight 1 oz (25 g)
- Diet Seeds, grass, leaves
- Location Australia

Most people know these friendly birds as pets, but large flocks of wild budgerigars are a familiar sight over the grasslands of Australia. **Wild birds are always green**, with a yellow face and blue tail. But since budgerigars were first introduced to Europe in 1840, careful breeding has produced birds in many different colors.



MANY COLORS  
*In captivity, budgerigars are bred so that they come in a wide range of colors: blue, gray, green, yellow, violet, and even white.*

## Galah

*Eolophus roseicapillus*



20+

- Length 14 in (35 cm)
- Weight 12 oz (325 g)
- Diet Seeds, grass, leaves, fruit
- Location Australia (including Tasmania)

The **noisy galah** is the most widespread and the most common cockatoo of all. It gathers in huge flocks, and can be a pest to farmers as it will raid fruits and seeds.



## Cockatiel

*Nymphicus hollandicus*



15+

- Length 12½ in (32 cm)
- Weight 3¼ oz (90 g)
- Diet Seeds, nuts, fruit
- Location Australia

This is the **smallest cockatoo**, but its beautiful coloring and large, bright yellow crest make it a popular pet. The crest is lowered when it rests, and sometimes when it feeds. The underside of the tail is black for a male bird and yellow for a female.



## Rose-ringed parakeet

*Psittacula krameri*

15+

- Length 16 in (40 cm)
- Weight 4 oz (125 g)
- Diet Seeds, nuts, fruit, flowers, nectar
- Location W. to E. Africa, S. and S.E. Asia

This bird can be found in more parts of the world than any other parrot. This is because many **released pet birds are breeding** in the wild in Europe and in North America.



## Rainbow lorikeet

*Trichoglossus haematodus*

15+

- Length 12 in (30 cm)
- Weight 5 oz (150 g)
- Diet Pollen, nectar, fruit, seeds, insects
- Location New Guinea, S.E. Asia, S.W. Pacific, Australia (including Tasmania)

This is one of the most colorful of all parrots. Its feathers are usually a stunning mix of vivid colors, although some birds are duller than others. Lorikeets have **bristles on their tongues** to help them to gather pollen and nectar from flowers.



## Hyacinth macaw

*Anodorhynchus hyacinthinus*



50+

- Length 3⅔ ft (1 m)
- Weight 3⅔ lb (1.5 kg)
- Diet Palm nuts, seeds, fruit, insects
- Location C. South America

These are the **largest of all parrots**, though half their length is made up of their tail! Often described as gentle giants, these highly intelligent birds love company and are usually seen in a group or with their mates. They stay with the same partner throughout their long lives.



## Kakapo

*Strigops habroptila*



45+

- Length 25 in (64 cm)
- Weight 4½ lb (2 kg)
- Diet Plant juices, grass, leaves, seeds, fruit, pollen
- Location New Zealand

Kakapos **cannot fly**, so are vulnerable to predators. They are extinct in the wild, but from 1987 to 1992 the few remaining birds were gathered up and taken to the safety of three predator-free islands off the New Zealand coast.



# Hummingbirds

These birds beat their wings in a figure-eight pattern, which gives them a lot of flight control. They are the only birds able to fly backward and they can even fly upside down. They also hover, which is necessary when they use their long bills to probe flowers and drink the nectar within.

My wings  
are a blur!

Small hummingbirds flap their wings about 4,200 times a minute. That's 70 times a second! A tiny bee hummingbird flaps its wings even faster, at about 200 times a second during courtship displays!

Magenta-throated woodstar  
*Calliphlox bryantae*

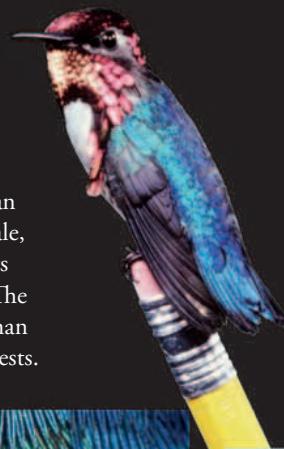
## Bee hummingbird

*Mellisuga helena*

■ Length 2–2½ in (5–6 cm)

■ Weight ⅓ oz (2 g)

■ Location Cuba, Isle of Pines



Famed as the **smallest bird in the world**, the male bee hummingbird is smaller than the female. Unlike the female, it also has iridescent feathers around its head and neck. The females lay eggs no larger than peas, in tiny walnut-sized nests.



▲ IRIDESCENT FEATHERS are a striking feature of most male hummingbirds. The feathers appear to have a metallic sheen. But why? It is to help the males to attract females. When he is looking for a female, the male searches for a perch in the sun, which causes the iridescent feathers to positively gleam.

► NO HUMMINGBIRD weighs more than 1 oz (24 g). That is about the weight of a tablespoon of sugar. The largest hummingbird is the giant hummingbird.



## FACTFILE

There are a number of different types of hummingbirds, but all of them are found in the Americas. They all have a long, pointed bill that is designed to probe into flowers so the bird can drink nectar.



**DIET** Hummingbirds don't just feed on nectar. It would make a very poor diet. They also catch insects and spiders, to add valuable protein, vitamins, and minerals.

# Woodpeckers and toucans

These woodland birds all have striking bills—some huge and brightly colored, others long, thin, and finely pointed like a dagger. They can also run up and down the sides of tree trunks with ease, thanks to their super-grip feet.

## FACTFILE

- **Number of species:** Just over 400 species, divided into six groups or families.
- **Key features:** Large bills and strong, parrotlike feet with two toes pointing forward and two pointing backward, for a firm grip.
- **Nest:** In holes, safely out of sight of predators.



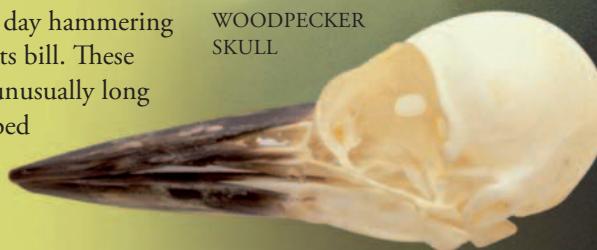
Size comparison



◀ **CACTUS NEST**  
*Gila woodpeckers* (*Melanerpes uropygialis*) are unusual: they thrive in deserts, where there are unlikely to be any trees to nest in. Instead, they peck out nest holes in the large cacti that are common in the dry, hot areas of the southwest United States, where this bird lives.

**Strong skull** Woodpecker skulls are extra thick. This helps to cushion the brain, which is important for an animal that spends hours every day hammering away at trees with its bill. These birds also have an unusually long tongue, with a barbed or sticky tip for catching insects.

WOODPECKER SKULL



**FEEDING** Woodpeckers are born blind and helpless and rely on their parents for many months. This youngster takes a tasty morsel that its father has carried back to the nest.

## Rufous-tailed jacamar

*Galbulia ruficauda*



■ Length 7½–10 in (19–25 cm)

■ Weight 5½–1½ oz (18–30 g)

■ Diet Insects

■ Location Central America and N. and C. South America

This beautiful bird, with its shimmering green, red, and gold feathers, likes to keep a low profile. It spends most of the day sitting quietly on a shaded branch, only darting out occasionally to spear a passing insect on its daggerlike bill.

## Green woodpecker

*Picus viridis*



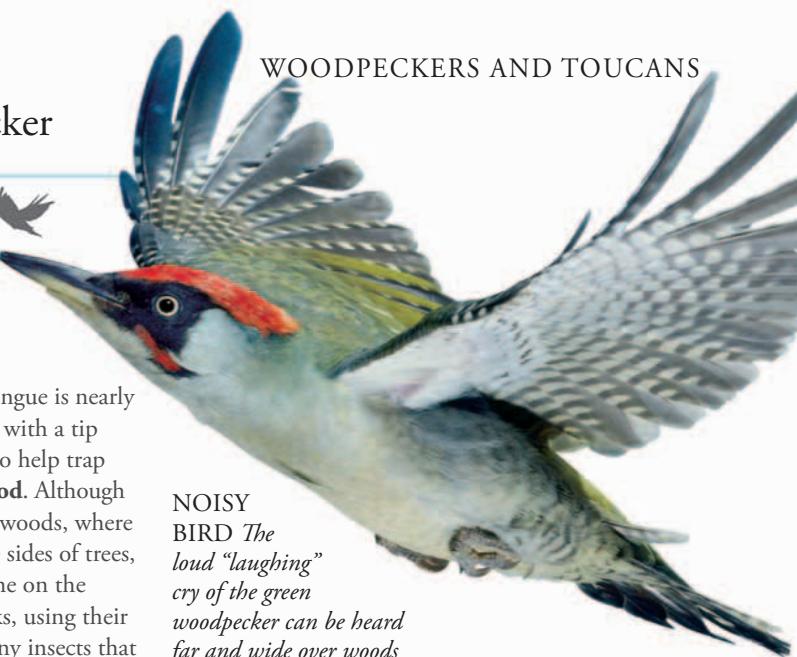
■ Length 12–16 in (30–33 cm)

■ Weight 6–7 oz (175–200 g)

■ Diet Insects, mainly ants

■ Location Europe, W. Asia

The green woodpecker's tongue is nearly twice the length of its bill, with a tip covered in a sticky liquid to help trap ants, the bird's favorite food. Although green woodpeckers live in woods, where they peck nest holes in the sides of trees, they also spend a lot of time on the ground, in gardens or parks, using their pointed beaks to dig out any insects that are crawling through the grass.



### NOISY

BIRD The loud "laughing" cry of the green woodpecker can be heard far and wide over woods and heaths during spring.

## Greater honeyguide

*Indicator indicator*



■ Length 8 in (20 cm)

■ Weight 1¾ oz (50 kg)

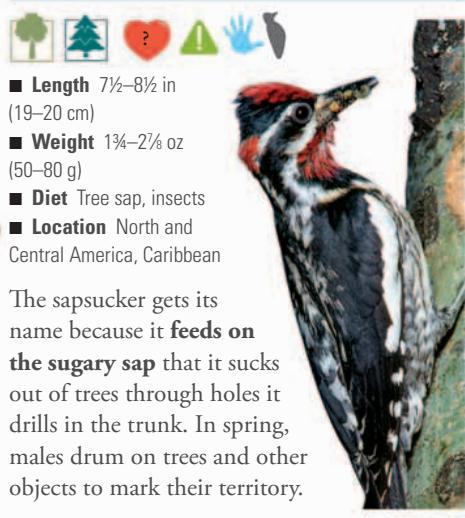
■ Diet Bees and beeswax, bees' eggs, ants

■ Location Central and southern Africa

Honeyguides can sniff out bees' nests, their main source of food, using their keen sense of smell. Some African tribes use the bird to guide them to bees' nests, so that they can harvest the honey.

## Yellow-bellied sapsucker

*Sphyrapicus varius*



■ Length 7½–8½ in (19–20 cm)

■ Weight 1¾–2½ oz (50–80 g)

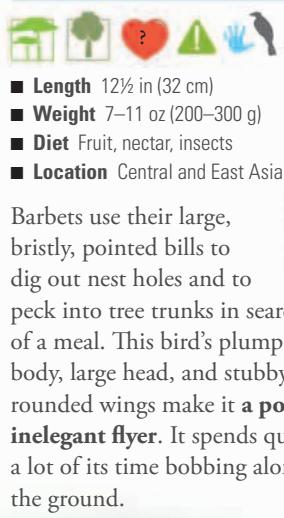
■ Diet Tree sap, insects

■ Location North and Central America, Caribbean

The sapsucker gets its name because it feeds on the sugary sap that it sucks out of trees through holes it drills in the trunk. In spring, males drum on trees and other objects to mark their territory.

## Great barbet

*Megalaima virens*



■ Length 12½ in (32 cm)

■ Weight 7–11 oz (200–300 g)

■ Diet Fruit, nectar, insects

■ Location Central and East Asia

Barbets use their large, bristly, pointed bills to dig out nest holes and to peck into tree trunks in search of a meal. This bird's plump body, large head, and stubby, rounded wings make it a poor, inelegant flyer. It spends quite a lot of its time bobbing along the ground.

## Toco toucan

*Ramphastos toco*



■ Length 21–23½ in (53–60 cm)

■ Weight 20 oz (550 g)

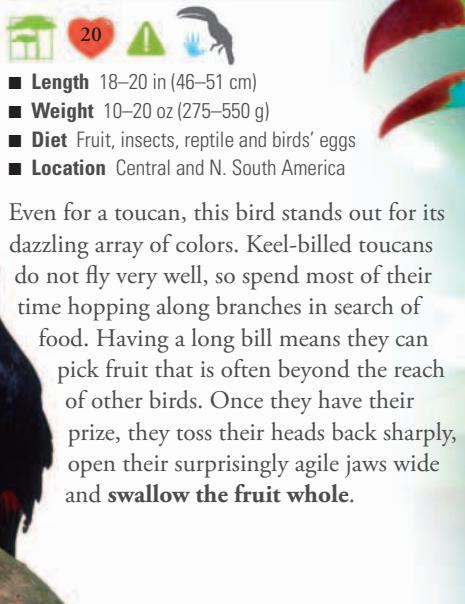
■ Diet Fruit, insects, birds' eggs

■ Location N.E. to C. South America

This is one of the largest and most well known of all toucans. Its spectacular, brightly colored bill is not solid, but has a honeycomblike structure, making it much lighter than it appears to be.

## Keel-billed toucan

*Ramphastos sulfuratus*



■ Length 18–20 in (46–51 cm)

■ Weight 10–20 oz (275–550 g)

■ Diet Fruit, insects, reptile and birds' eggs

■ Location Central and N. South America

Even for a toucan, this bird stands out for its dazzling array of colors. Keel-billed toucans do not fly very well, so spend most of their time hopping along branches in search of food. Having a long bill means they can pick fruit that is often beyond the reach of other birds. Once they have their prize, they toss their heads back sharply, open their surprisingly agile jaws wide and swallow the fruit whole.



# Amazing nests

Birds' nests come in all shapes and sizes, from the tiny cup-shaped ones of songbirds to the massive platforms of eagles and the complex communal nests of weaver birds. All kinds of materials are used to build nests and some birds spend many weeks constructing them.

## WHY DO BIRDS BUILD NESTS?

Most birds build nests, but a nest is rarely a permanent home. Birds usually only start to build a nest when they are ready to breed. This is because they need a safe, warm place to lay their eggs, and for their newly hatched chicks to develop.



## NEST INGREDIENTS

Birds use many things for building their nests, including sticks, mud, feathers, stones, twigs, grass, and moss. Long-tailed tits even use sticky cobwebs to hold their moss nests together. They then camouflage the nest with lichen and use feathers to give it a soft lining.



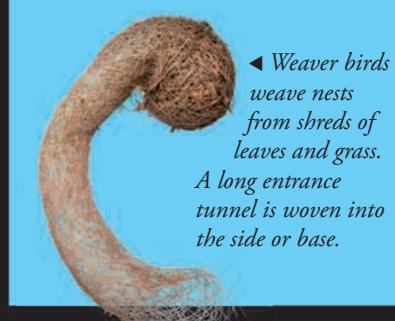
**No nest** The white (or angel) tern does not build a nest. It just sticks its eggs in the fork of a tree branch, using only a glob of mucus to hold them in position.

**Just move in** Most owls are not eager nest builders. They often lay their eggs in holes in tree trunks. These openings may have been hollowed out by another bird, or they may be natural.



## NEST SHAPES

Some nests are little more than a hole scraped in the ground and lined with pebbles. But many are complex structures, built to last.

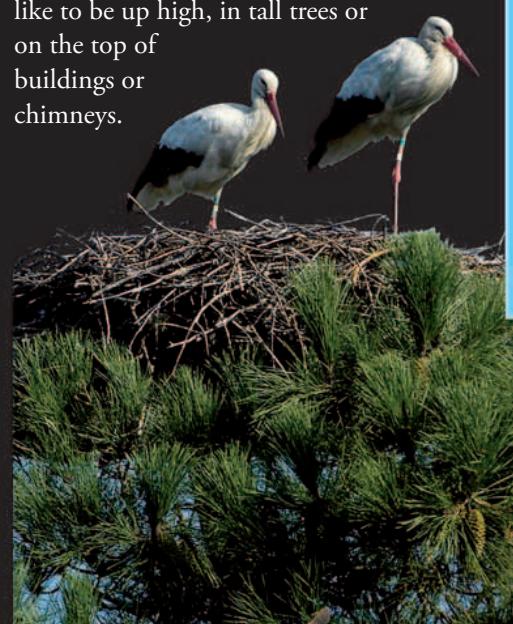


► Weaver birds weave nests from shreds of leaves and grass. A long entrance tunnel is woven into the side or base.



**Out of reach** Many gulls nest in colonies high up on the cliff face, away from possible predators. They build cup-shaped nests from twigs and plant materials along the rocky ledges.

**Family pile** Storks build huge nests by piling up sticks, often adding more sticks to the same nest year after year. They like to be up high, in tall trees or on the top of buildings or chimneys.



► Old World orioles weave sacklike nests that they hang from the branches of trees. They use almost any materials, including bits of string.



► Many small birds make open, cup-shaped nests.

**SAFETY IN NUMBERS**  
Southern masked weavers like to nest in groups. Colonies of up to 100 nests, woven from strips of grass, are seen on the African savanna in spring.

# Perching birds

More than half of all the bird species in the world belong to a group known as perching birds, or passerines. The feet of perching birds have three toes pointing forward and one backward. This allows them to get a firm grip on even the thinnest and most flexible branches.

## FACTFILE



Perching bird foot



Size comparison

■ **Number of species:** about 5,500.

■ **Key features:** specialized perching feet, with three toes pointing forward and one back. Most perching birds have distinctive songs.

■ **Size:** The crows and ravens are the largest, with lengths of up to 25½ in (65 cm). The short-tailed pygmy tyrant is the smallest perching bird at just 3 in (7 cm) in length.

## GOOD SINGERS

Another special thing about perching birds is their ability to sing. They are often referred to as songbirds, and many of them have wonderful voices. Each species has a particular song, which may be made up of a wide range of notes.

The best singers include the song thrush and the nightingale.

My **feet** don't lose their grip even when I go to sleep.

When a bird lands, the weight of its body presses down on its toes. This makes the toes lock automatically around the branch in a tight grip.

## Great tit

*Parus major*



15



- **Length** 5½ in (14 cm)
- **Diet** Insects, fruit, seeds
- **Location** Europe

This tit is seen everywhere from woodlands to town gardens. **Bold and bossy**, the great tit does not hesitate to drive smaller tits away from garden bird tables. Its distinctive two-note "teacher, teacher" call is easy to recognize.



## Woodpecker finch

*Camarhynchus pallidus*

?



- Length Not recorded
- Diet Insect larvae
- Location Galápagos Islands

This finch is a **rarity** among animals because it **uses a tool to catch food**. The bird holds a twig or cactus spine in its beak and probes in tree bark with the tool to lever out grubs.



## White-throated dipper

*Cinclus cinclus*

10



- Length 7–8 in (18–21 cm)
- Diet Small fishes, crustaceans, mollusks, larvae
- Location Europe, N. Africa, N. Asia

The dipper is found by fast-running streams and rivers. It swims well, and **can walk along riverbeds completely submerged** while it searches for food. When the dipper is not in the water, it perches on rocks by the riverbank, constantly bobbing its body up and down.

This dipping action is how the bird got its name.



## European robin

*Erithacus rubecula*

17



- Length 5½ in (14 cm)
- Diet Insects, worms, berries
- Location Europe, N. Africa, N.W. Asia

The “redbreast” is popular with gardeners in the UK for its **cheerful, bubbling song** and its appetite for harmful insect pests. Elsewhere in its range, the European robin is less inclined to associate with people. For all their charm, robins can be very **fierce** in defense of their territory.



## Song thrush

*Turdus philomelos*

17



- Length 9 in (23 cm)
- Diet Berries, insects, worms, slugs, snails
- Location Europe, North Africa, N.W. Asia, Australia, New Zealand

Broken snail shells by a flat stone are a sign that a thrush has been eating there. **Numbers** of thrushes have **fallen dramatically** in Europe due to loss of their farmland habitat.



## Winter wren

*Troglodytes troglodytes*

7



- Length 3½ in (9 cm)
- Diet Insects and spiders
- Location Europe, N. America, N. Africa, Asia

This is a **very small bird** with a very loud voice. Wrens usually **live in dense hedges**, and can be heard before they are seen. In the breeding season, the male builds several nests for the female to choose from.



## Red-backed fairy-wren

*Malurus melanocephalus*



- Length 4–5 in (10–13 cm)
- Diet Insects, fruit, seeds
- Location N. and E. Australia

There are several different species of fairy-wren in Australia and Papua New Guinea. The red-backed wren, like all its fairy-wren relatives, has a **long tail** that it carries **cocked upright**. This wren builds its nests in dense undergrowth or among tall grasses. It is sometimes a garden visitor.



▲ SPLASH OF RED  
The vividly colored red-backed wren is the smallest of all the fairy-wrens.

## Red crossbill

*Loxia curvirostra*



- Length 6½ in (17 cm)
- Diet Seeds (from pine cones)

■ Location North America, Europe, Asia

The crossbill's unusual **crossed-over beak** develops gradually, and is not seen in young birds. This beak is the perfect shape for breaking the seeds off pine cones.



## Japanese white-eye

*Zosterops japonicus*



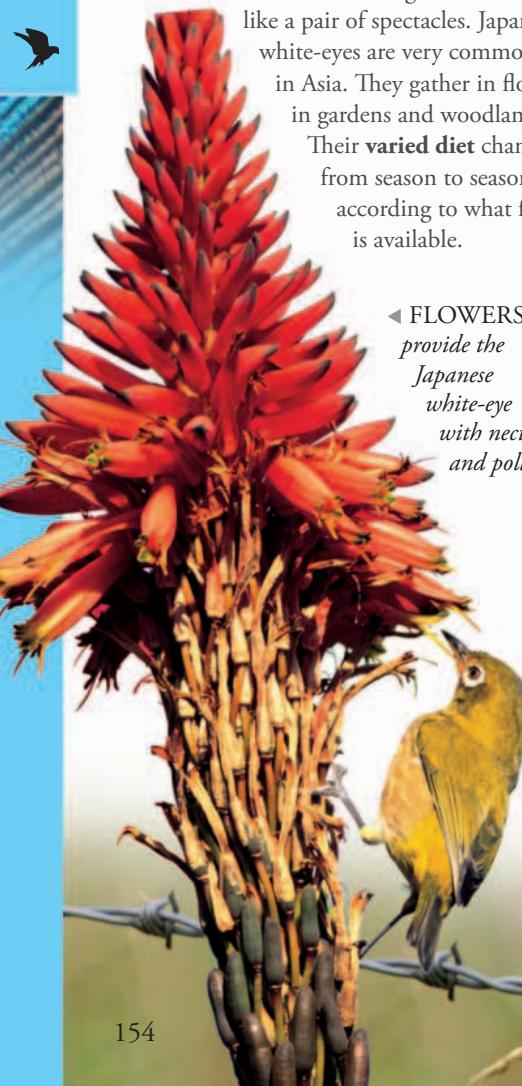
- Length 4 in (10.5 cm)
- Diet Invertebrates, fruit, berries, nectar

■ Location S. and S.E. Asia, Hawaii

White feathers ring this bird's eyes like a pair of spectacles. Japanese white-eyes are very common in Asia. They gather in flocks in gardens and woodlands.

Their **varied diet** changes from season to season, according to what food is available.

◀ FLOWERS provide the Japanese white-eye with nectar and pollen.



## Raggiana bird of paradise

*Paradisaea raggiana*



- Length 14 in (35 cm)

■ Diet Fruit

■ Location Papua New Guinea

There are many species of bird of paradise. The male birds usually have spectacular **flowing plumes**, which they show off in courtship rituals. Males of the type of bird of paradise shown here gather together to put on a mass display in front of the females.



## Northern house martin

*Delichon urbicum*



- Length 5 in (12.5 cm)

■ Diet Flying insects

■ Location Europe, Africa (south of Sahara) and S.E. Asia

House martins like to be close to people. These birds nearly always use buildings as nesting sites. They stick their **mud nests** under the eaves of houses, in barns, and even under road bridges. About the only time a house martin comes down to the ground is when it is collecting mud for a nest. For most of its life, a martin stays in the air, wheeling and swooping in pursuit of flying insects.

## Short-tailed pygmy tyrant

*Myiornis ecaudatus*



- Length 2½ in (6.5 cm)

■ Diet Insects

■ Location N. and Central South America



This is one of the smallest birds in the world. Its tail is not much more than a tiny stub. The short-tailed pygmy tyrant belongs to a group of birds called tyrant flycatchers. These birds are **highly skilled at catching their insect prey** in midair. They are called "tyrants" because, despite their generally small size, they are very aggressive.

## White wagtail

*Motacilla alba*



- Length 7 in (18 cm)

■ Diet Insects, seeds

■ Location Europe

The banks of rivers and streams, and the edges of ponds are good places to see a pied wagtail. This bird **loves to be near water**. A wagtail darts about in short, fast runs, flicking its tail, as it hunts for the insects that are the main part of its diet.



### ► PAIRED UP

A breeding pair of ravens can be fierce when they are defending their territory. The couple may attack intruders or chase them over long distances.



## Dark-eyed junco

*Junco hyemalis*



- **Length** 5½–6 in (14–16 cm)
- **Diet** Seeds, berries, invertebrates
- **Location** North and Central America, Europe, Asia, North Africa.

Common in woodland, dark-eyed juncos **flock together** during the fall and winter, when the breeding season is over. The male junco sings at most times of the year.



## Common raven

*Corvus corax*



- **Length** 26½ in (65 cm)
- **Diet** Fruit, nuts, eggs, carrion, small animals
- **Location** North and Central America, Europe, Asia, North Africa

The raven is one of the largest perching birds. It is noted for its aerobatic flight, during which it may twist and turn at high speed. Often, a raven rolls right over in midair and **flies upside down**. The bird makes various calls, including a hoarse croak.



## Zitting cisticola

*Cisticola juncidis*



- **Length** 4 in (10 cm)
- **Diet** Insects
- **Location** S. Europe, Africa, Asia, Australia

This warbler is **hard to see** because its color blends in with the grasslands and scrublands where it lives. In flight, it makes a monotonous **two-note call**.



## Cliff swallow

*Petrochelidon pyrrhonota*



- **Length** 5–6 in (13–15 cm)
- **Diet** Flying insects
- **Location** Alaska, Mexico, South America

Buildings as well as cliffs are good nesting sites for cliff swallows. The birds plaster their **cone-shaped mud nests** on to vertical walls. These birds **migrate**, spending spring and summer in the north and going south for the winter.



BIRDS



## Red-whiskered bulbul

*Pycnonotus jocosus*



- **Length** 8 in (20 cm)
- **Diet** Berries, insects, nectar
- **Location** Asia; introduced into Australia and US

Bright plumage and an **attractive song** have made the red-whiskered bulbul popular as a cage-bird. These birds are trapped in large numbers. They are still common but may soon need protection.



► **COLONIES**  
*Hundreds, or even thousands of cliff swallows may nest together at one site.*

## Australian golden whistler

*Pachycephala pectoralis*



- **Length** 6–10½ in (15–27 cm)
- **Diet** Insects, berries
- **Location** Indonesia, S. and E. Australia, Tasmania, Fiji

As its name suggests, the golden whistler is a fine songster. It has a loud, **tuneful voice** and a wide range of notes. Golden whistlers have particularly strong feet for gripping and a stout beak.



▼ **COZY NEST**  
*Golden whistlers bind their nests with spiders' webs and line them with soft grass.*

# Starlings

Starlings are a familiar sight in many countries throughout the world, roosting and flying in huge, noisy flocks. They nest in man-made or natural cavities, perhaps finding a space under roof tiles or a hole in a tree, and have proved immensely successful.

## FROM SMALL BEGINNINGS

Sixty starlings were deliberately released in New York City in 1890 by a man who aimed to release into the Americas all the birds named by Shakespeare. By the mid-1950s, starling numbers in North America had reached 50 million, and today there are thought to be some 200 million starlings.

### European starling

*Sturnus vulgaris*



15



- **Length** 8½ in (21 cm)
- **Weight** 2–3¼ oz (60–96 g)
- **Diet** Insects, earthworms, seeds, fruit
- **Location** Worldwide except polar regions

Starlings are **stocky birds**, with speckled feathers that shimmer with iridescent purple and green. Their **bills turn yellow** in the breeding season. They are noisy birds, and often mimic the calls of other birds, and even frogs or cats.



**Birds** fly in one of two ways: they either flap their wings continually, or they are able to glide on air currents, flapping their wings occasionally. Starlings are flappers, following straight flight lines and beating their wings rapidly to stay aloft.



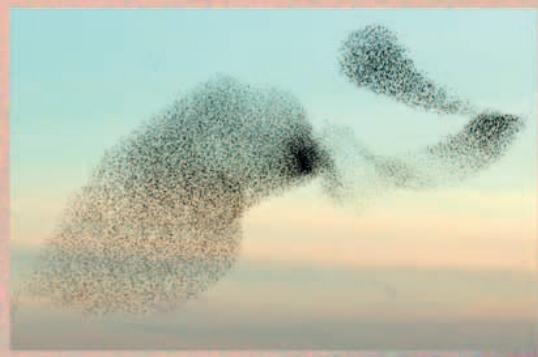
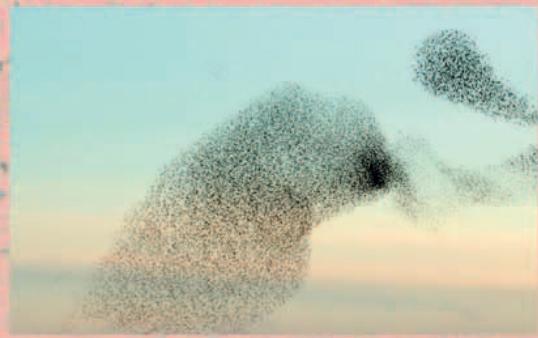
▲ JUVENILE STARLING Young birds have a brown plumage, and no iridescent feathers.



As the bird takes off, its feet are drawn up toward the body.



By flapping its wings up and down, the starling stays in the air.



**Murmuration** Starlings gather in large flocks, and occasionally more than a million birds will gather. This is known as a murmuration and it will swoop and soar as one, each bird following its neighbor. Flocks as big as these make strange dark shapes in the sky.

# A world of eggs

No two bird eggs are exactly alike; they vary greatly in size, shape, color, and texture, while the size of the egg doesn't always relate directly to the size of the bird. An egg laid by an ostrich is the world's largest bird's egg, but it is one of the smallest eggs in relation to the bird's body size.



 **Emu**  
*Dromaius novaehollandiae*



 **Herring gull**  
*Larus argentatus*



 **Black-winged cuckoo-shrike**  
*Coracina melanotos*

 **Rose-ringed parakeet**  
*Psittacula krameri*



 **Masked finfoot**  
*Helioptais personatus*

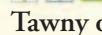
 **Rock wren**  
*Salpinctes obsoletus*



 **Egyptian vulture**  
*Neophron percnopterus*

 **Black woodpecker**  
*Dryocopus martius*



 **Tawny owl**  
*Strix aluco*

 **Madagascar bulbul**  
*Hypsipetes madagascariensis*



 **Gray butcherbird**  
*Cracticus torquatus*

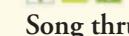
 **Ringed plover**  
*Charadrius hiaticula*



 **Common kingfisher**  
*Alcedo atthis*



 **Green broadbill**  
*Calyptomena viridis*

 **Song thrush**  
*Turdus philomelos*



 **Eurasian nightjar**  
*Caprimulgus europaeus*



