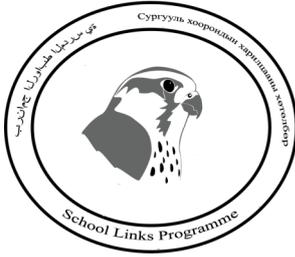


Fact Sheet



Birds of Prey



Photo: Lee O'Dwyer

Birds

Birds are warm-blooded vertebrates. They have light skeletons and nearly all species have hollow bones. They have no teeth, and instead use their beaks to break up their food. To aid in respiration, they have air sacs throughout much of their body. In addition, birds are the only living animal that has feathers. These feathers insulate and protect their bodies, and they are what make flight possible for most birds. Some birds like penguins, or the Kiwi found in New Zealand, cannot fly at all, even though they do have feathers, too. All birds have two wings and two legs that they might use for hunting, walking, swimming and/or perching, depending upon the species. There are more than 8,500 species of birds worldwide, and each one varies in size, shape, colour, diet, and habitat needs. Based on these characteristics and others, scientists have classified birds into a variety of different groups. Some birds are classified as shorebirds, others as waders, and still others as songbirds.

Reptilian Relatives

Birds have a lot in common with Reptiles, such as turtles, crocodiles, and lizards. Scientists theorize that birds and reptiles are old relatives, and have many shared traits.

For example, both birds and reptiles:

- lay eggs
- have similar eyes and brain
- have similar skull and ear bones
- have partially hollow bones
- have similar blood proteins
- have scales covering parts of their body

Scientists also believe that birds have some very different traits from their relatives, such as feathers instead of scales (though most birds have reptile-like scales on their legs and feet), pointed beaks, and wings. People who study birds are called ornithologists.

All birds have the same basic parts and functions, but are unique in their own ways. All birds are warm-blooded, which means they can control and maintain a constant body temperature even if the temperature around them changes. Cold-blooded animals can only control their body temperatures by moving into warmer or cooler areas.

Basic Characteristics of Birds of Prey

Birds of prey, or raptors, are meat eaters and use their feet, instead of their beak, to capture prey. They have exceptionally good vision, a sharp, hooked beak, and powerful feet with curved, sharp talons.

Raptors are divided into two basic groups: diurnal, those more active during the day; and nocturnal, those that are more active at night. Diurnal raptors include: hawks, eagles, kites, osprey, harriers, the secretary bird, vultures and falcons. Nocturnal birds of prey include all the owls.

Vision

For raptors, one of their most important senses is their sight. They depend on their eyesight to find food, to recognize other members of their species, and to avoid predators. In comparison with the size of their heads, their eyes are very large. Our eyes, for example, make up only 1% of the weight of our heads, while a raptor's eyes make up around 15%. If we had eyes that were proportionately the same size as a raptor's, our eyes would be the size of oranges! Biologists estimate that raptors can see 2 to 8 times better than humans. Because their eyes are so large, they are fixed inside their skulls. Raptors cannot move their eyes up and down or to the right and to the left like we can. In order to look right or left, a raptor must move its entire head. Raptors, owls in particular, have very flexible necks so that they can look almost in any direction without moving their bodies – just by turning their heads. Owls can turn their heads 270 degrees from a front-facing position. Diurnal raptors see in colour. There are even some raptors, like the Kestrel (a small falcon) that can see ultraviolet light. With this special ability, kestrels can actually see the urine trails (which reflect ultraviolet light) left by their main prey – mice. In this way, they can easily locate areas in which the mice are present.

Beaks

All raptors have strong, curved beaks with sharp edges. Raptors use their beaks to tear into the flesh of their prey. Some raptors, like falcons, might also use their beaks to kill their prey quickly, once they have been caught in the bird's talons. Even though raptor beaks all share certain characteristics, there is some variation among the birds of prey, depending on what each species eats. For example, the Mauritius Kestrel, which feeds on geckos, other arboreal lizards and some insects and small birds, has a short, stout beak. The Crowned Eagle, on the other hand, has a large, strong bill which it uses to tear into the thick hides of its prey that can include antelope and monkeys.

Hearing

In general, birds have excellent hearing. Their calls and songs are used to communicate with potential mates; with intruders; and with members of their own flocks. Many raptors also use their hearing to locate prey. While all raptors have good hearing, those species that hunt at night, or in the semi-darkness of a dense forest, or those that tend to hunt prey in tall grass, tend to have excellent hearing - and for good reason. Due to low light or dense vegetation their prey can be very hard to see. Most owls and some diurnal raptors, like the Madagascar Harrier, have a special adaptation called a facial disk, or ruff. The facial disk is composed of feathers that form a circle around the bird's face, which the bird can lift or lower at will. When the feathers of the facial disk are raised, they help direct sounds to the birds' ears – it has the same effect as when we cup our hands behind our ears. The sound becomes louder and it is easier to pinpoint thanks also to their asymmetrical ear openings. In the bird world, owls have an unusually heightened sense of hearing. Some owls can locate and capture their prey in complete darkness – using only their hearing to guide them.

Legs and Feet

A raptor's feet are used to catch their prey and when necessary, in self-defence. Generally speaking, their feet and legs are strong. They tend to have muscular toes and needle sharp talons. However, since each species has a slightly different diet, there is some variety in the size, shape and strength among raptor's feet. Mammal eaters, such as the Crowned Eagle usually have short, strong toes. Other raptors, such as falcons, that are primarily bird eaters, have longer toes which allow them to pass through their prey's feathers and grab their bodies. Raptors that feed on snakes, like the East African Snake-Eagle, tend to have short, strong toes and thick scales on their legs to help protect them against a snake bite. The Osprey, a bird that feeds mainly on fish, has rough foot pads which help it better grip its slippery prey.

The majority of raptors have three toes that face forward and one toe that faces back. However, many owls and the Osprey can actually change the position of their toes so that two of them face forward while the other two face back. This helps increase the surface area of their feet and makes it a little bit easier for them to catch and hold on to their prey.

Sense of Smell

For a long time, scientists believed that birds could not smell at all. However, each day we are learning more and more. Recently, scientists have discovered that some birds can, in fact, detect odours, although the strength of this ability varies from species to species. Today, it is still generally accepted that this sense is very limited in birds of prey. However, turkey vultures can find dead animals under forest cover just by smell.

Raptors are split into groups which include eagles, ospreys, kites, hawks, buzzards, harriers, falcons, vultures and owls.

Diet and Digestion

Each raptor species' diet varies quite a lot, depending on the size of the bird, the habitat in which it lives, and a number of other factors. Some raptors, like the African Fish Eagle, feed mainly on fish, though they will take other prey items including flamingos! Other raptors, like kestrels, feed on insects, and small reptiles, or mammals. Others, like the snake-eagles are principally snake hunters, while still others feed on medium to large mammals. Some raptors are adapted to eat only a few different types of prey, while others have a varied diet and may eat almost anything they can catch. Most raptors have what is known as a "crop." The crop is an organ which is used to store a raptor's food inside their bodies, before the food moves to their stomachs to be digested. When a raptor has eaten its fill, the crop extends and forms a large bump, which is visible just below the bird's neck.

Even though raptors are carnivorous, they still are not able to digest all the body parts of their prey. For example, they are usually unable to digest much of the fur, feathers, bones or exoskeletons that they ingest. All of these indigestible bits form into a ball, or pellet, in the bird's crop. This pellet is then regurgitated. By finding and dissecting these pellets, scientists can find clues as to what the bird was eating. Owls often have the most interesting pellets because they usually swallow their prey whole, instead of tearing off small pieces of meat at a time. It is possible to find entire skeletons of their prey inside the pellets
Teeth in the Stomach

Once food has passed from the crop into the stomach it is attacked by strong acids to help digest the food chemically. The partially digested food then passes into the gizzard, a specialized muscular portion of the stomach. A bird will use its gizzard in the manner that other animals use their teeth, to grind and crush hard nuts, seeds, grain, and other foods. Birds do this because they don't have teeth.

Some birds may swallow small stones and grit that can help the gizzard grind and crush. Things (feathers, fur, stones, bones, etc.) swallowed by birds that the stomach cannot break down, are stored in the gizzard and regurgitated later as pellets.

Size Difference between the Sexes

In many animal species, one sex tends to be larger than the other. In most cases, the males are larger than the females. However, in birds of prey, the opposite is true. Though scientists are not sure as to why there is a difference in size, some theories do exist to explain these differences. One theory suggests that females are larger because they are the ones that are usually responsible for caring for and protecting the eggs and chicks. Being larger would provide her an advantage when protecting her young against potential predators. In most birds of prey, females tend to do the majority of the incubation, which means the males are responsible for finding food. Smaller individuals (males) tend to be faster and more agile, and therefore, potentially better hunters. Once a pair's offspring reach a certain age, often times both parents will spend time hunting for food.

Another theory says that having a small male and a larger female allows the pair to hunt animals of different sizes, thus eliminating direct competition for the same prey items.

Nests

The nesting habits of raptors vary considerably from species to species. Some raptors, like the majority of falcons and owls, do not construct their own nests. Instead, they use nests that have been abandoned by other species, or, they might forego the use of traditional nests altogether and lay their eggs in small crevices, ledges, tree holes or even directly on the ground. For those species that do build their own nests, usually the female is the one responsible for building the nest with materials brought by the male, though this is not always the case. Some birds of prey build a new nest each year, while others reuse the same nest year after year.

Eggs

Depending on the species, the size, colour and amount of eggs laid varies greatly. Larger birds of prey lay fewer eggs than their smaller counterparts. Eagles, for example, may lay one or two eggs during a breeding season, while small kestrels can have up to six eggs in one clutch. Species that live in tropical climates usually lay fewer eggs than those species found in more temperate climates.