

BLOCK 9



HOW BIRDS CARE FOR THEIR YOUNG



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As a result of the mating season bird pairs come together. Some birds mate for life (e.g. swans and albatrosses), while other search for a new partner every year. Most species (around 90%) are confirmed monogamists, which means that during one breeding season they bond with one partner only. It is particularly important when considering the investment in incubating the eggs and caring for the offspring, which is time and energy consuming for the parents. Sometimes the extent of sacrifice of the parents is truly amazing.

The males of Antarctic Emperor Penguin, which bear the responsibility for incubating the egg, breed far away from their ocean foraging areas, forcing them to manage without food for a long period of time (up to 110 days) and instead to use up previously accumulated fat reserves. As a result, males will lose up to 45% of their body mass. The male can stop incubating only when the female relieves him, so he can go replenish to his fat reserves. If the chick hatches before its mother arrives, it is the male that puts it on the ground and shelters it in his brood pouch, as well as feeds it with 'milk' secreted in the oesophagus. After roughly a two-month absence, the female is back and takes over the childcare, feeding the chick with regurgitated food from the crop. Meanwhile, the male ventures to forage at sea, where he spends several weeks. After the male's return, the parents take turns looking after their chick – when one parent is looking after the offspring, the other will travel as far as 120 kilometres between the nesting colonies and the areas of permanent open water in search of food. Two months after hatching, when the air temperature picks up a little, the chicks gather in 'crèches' where they huddle together for warmth. During this time they are still fed by the parents, who forage in the open ocean.

Penguins lay their eggs at the beginning of the Antarctic winter, when temperatures can drop as low as 50 degrees Celsius below zero. Meanwhile, tropical hornbills use an altogether different technique. After locating a tree hollow suitable for egg laying, the male will proceed to 'seal' the female inside, which remains there until the chicks hatch and grow a little, which usually takes three months. The male continues to feed the female through a tiny opening, ensuring that both eggs and chicks are safe from predators.

The incubation time is usually shorter for smaller birds (tits – 12 to 14 days, sparrows – 13 to 14 days, swallows – 14 to 16 days). Interestingly, the great spotted woodpecker incubates for 8 days only. For bigger birds, such as ducks, the incubation time lasts between 21 to 30 days, geese and owls need between 30 and 35 days, while ostriches' incubation time ranges between 50 to 60 days. The emu and southern royal albatross lead the way, with record 82 days spent incubating.

Some species, such as owls, begin incubating the moment they lay the first egg, which results in chicks hatching at different times (asynchronous hatchings). Other species start the



incubation process after laying the second egg, which leads to the third chick being smaller and undernourished. Quails on the other hand do not start incubating until the last egg is laid and consequently all chicks hatch at the same time (synchronous hatchings). Fascinatingly, the quail's unhatched chicks communicate with each other by emitting faint chirps. The first chirp triggers a response in the remaining chicks to leave the egg. The chirping is quite fast-paced but can be slowed down if the other chicks are not ready to leave the egg. Only when the chirping in all the eggs reaches the same frequency will the hatching begin. The sounds produced by the chicks also serve as a signal to parents. For the quail it is vital that all the chicks leave the nest simultaneously, increasing their chance for survival. Before the chick is able to communicate vocally it needs to break into the air cell, i.e. the air-filled pocket at the flat end of the egg.

Chicks get out of the egg by making one or several holes using the so-called egg tooth, which is a horn-like projection at the tip of the upper beak. It facilitates pipping and is lost soon after hatching. Having made an aperture of the appropriate size chicks break the shell with the strength of their own muscles in one or several places. Adults transport the broken eggshells away from the nest or even swallow them so that the clutch remains undetected by predators.

Birds with shorter incubation periods may produce a new clutch if, as a result of bad weather or predatory activity, the eggs from the first clutch have perished. As a rule, the same nest will be used, although some birds will relocate to increase the survival chances of their offspring.

The chicks of altricial species remain in the nest until they become fully-fledged and are able to fly. Until that happens, they are covered with fine down feathers making it impossible for them to maintain the right body temperature. Owing to poorly developed feathers and insufficient capacity to thermoregulate they need to be fed and brooded by the parents for the duration of their stay in the nest. Since nesting is long, parents must ensure that chicks are comfortable and safe, hence the reason why altricial nests are hidden away (tree hollows, rock crevices, burrows) or intricately built, like nests of penduline tits. The nutritional needs of nestlings are big and most often both parents are involved in the feeding process and sometimes assisted additionally by so-called helpers at the nest, i.e. juveniles from the previous year. Nestlings are begging for food by stretching their necks, opening their beaks wide and making tiny vibrating movements with their heads. The chick's gape is often brightly coloured and with distinctive markings, making it well visible to the adults, which is especially important in the case of nests that are closed or located in tree hollows or burrows. The gape's flange is extremely sensitive – even the tiniest stimulus by the parents prompts chicks to gape. Interestingly, in some birds, e.g. the common linnet, the intensity of the colouring inside the beak reflects how hungry the chick is. Hungry chicks will demonstrate brighter colouring



inside the beak reflects how hungry the chick is. Hungry chicks will demonstrate brighter colouring (prompting a quicker parental reaction), which is the result of faster blood flow in this part of the body.

The appetite of nestlings is huge, seemingly insatiable. The great tit, feeding its chicks with insects, may have to travel there and back up to a 1000 times daily with a beakful of bugs for the hatchlings. In some periods it consumes its own weight (20 grams) in insects, or, in other words, 130-200 bugs depending on their size. Proportionally, a family of great tits will eat 75 kilo of insects, which constitutes approximately three million insects. Research into the May clutch of a starling revealed over 300 feeding rounds, with each chick consuming on average 58 potato beetles and 472 May beetles. The nestlings of one starling pair which stayed in the nest for 3 weeks ate 7808 May beetles in total. Thrushes have been observed to display similar behaviours, with 300 flights a day.

Raptors cannot afford to feed their chicks with a matching frequency. Their feeding times are more scarce, but the parents try to deliver more food at a time. Seabirds often swallow food, digest it preliminarily and then regurgitate it and serve in their beaks. Chicks insert their heads into parents' beaks where they feed on the mush. Additionally, the process makes the food easier to swallow and digest for the nestlings.

Pigeons secrete so-called crop milk, a thick liquid which is a product of decomposing lining of their crop. Nestlings insert their beaks into the throats of their parents and feed on the milk. It supplements protein lacking in chicks' diet, which is mainly seed-based. Flamingos also produce a similar substance, which is additionally rich in red blood cells, rendering the secretion reddish in hue.

It is hardly surprising that adult birds cannot wait to relieve themselves of the burden of the feeding responsibility. A lot of them will actively encourage their young to fly by limiting feeding. Fledglings making first ungainly attempts at flying often end up on the ground or in neighbouring shrubs. It is a precarious time for the young – unable to fly well, they often fall prey to predators.

Peregrine falcons use a very skilful system of incentives to get their chicks to fly. During the first flying lesson, the adult (usually female) sits with the prey near the nest and tempts the young to fly towards it. If the chicks succeed in covering the short distance, the lesson becomes gradually more difficult. The female will fly nearby the nest, holding the prey in her claws and urging the fledglings to fly up to her. If the chick reaches her, she will rotate on her back and allow it to claim the food from her claws. The third lesson is the most difficult yet. This time the female drops the prey mid-flight and the learning chick has to intercept it while flying. If it fails, the prey is usually grabbed by the other parent and the whole lessons starts once again. Once the chicks master the skill they are independent flyers ready to fly the nest.

The length of parental care in altricial species is varied and usually determined by the bird's size. Small birds, such as sparrows, tits or chaffinches look after their young for around 3 weeks in the nest and 2 weeks after they have left it. Storks care for their chicks for about 70 days, while herons tend to them for 7 weeks while still in the nest, and 2 weeks outside the nest. Most of 'our' species are altricial, e.g. sparrows, blackbirds, great tits, woodpeckers, owls and herons.

The young of precocial species, such as ducks, swans and grebes spend very little time in the nest. After leaving it the youngs are capable of quick and independent movement. The chicks hatch covered in down which is quickly replaced by proper feathers. Precocial birds build nests on the ground or on the surface of the water, and their construction often lacks the finesse and durability of altricial species' homes, though they are often well hidden. Despite apparent independence, the chicks usually require parental supervision for a



period of time vis-à-vis protection from the sun and rain, being kept warm at night and fed with extra tasty food. As regards seabirds, their young chicks wouldn't be able to forage for food but for the parents' instruction. Parental care extends also to transportation, especially when the young are unable to fly. Adult jacanas serve as a case in point – they can walk on leaves of floating vegetation with their chicks stowed underneath their wings. Grebes, resident in Poland, swim with their chicks hitching a ride on their backs while the adults spread the wings ever so slightly, to guard them from falling. An adult grebe feeds its chicks turning its head and serving the food in its beak.

Young mallards lack skills necessary to repel danger, therefore the mallard mother (which bears the brunt of parental care) must remain nearby to protect them from predators, if possible. The female uses vocal calls and the chicks respond to her vocalisation. Interestingly, the chicks learn to recognise the voice of the mother before they hatch.

Of all the birds nesting on the ground, Australian megapodes are the quickest to reach maturity and independence. These superprecocial species hatch after 60-80 days from eggs buried in nest-mounds built of decaying vegetation. Although megapode eggs have a thin calcium shell, after hatching the chick needs to tunnel its way through a layer of soil that can be several dozen centimetres thick. Reaching the surface may take even several days, but on completing the mission the young bird is fully feathered, able to fly and live independently from its parents.

Birds adopt various strategies to protect eggs and chicks from danger. While most birds, when faced with danger, will abandon the eggs and lay a new clutch, there are species that will fiercely protect their nests. The behaviour is characteristic of precocial birds or those species that build their nests on the ground or in low grass. When in danger, they might feign a broken wing and walk away from the nest. The predator will follow the seemingly easy prey and when the distance from the nest is large enough, the bird will take flight and flee. Such behaviour can be observed in lapwings, plovers and larks. The colouration of chicks of many species mimics the surroundings and when in danger, they cling quietly to the ground and blend in with the background. Behaviours used to attract the attention of the predator away from the young are known as distraction displays.

Sometimes chicks themselves engage in anti-predator defences. Hoopoe chicks, nesting in a tree hollow, squirt out a foul-smelling substance produced by the modified uropygial gland or cloacal contents. The ejected substance can travel the distance of up to 50 centimetres. Fulmars, on the other hand, especially young ones, attack predators with regurgitated smelly liquid.

How to behave in the vicinity of a nest?

Under no circumstances should you approach birds' nests or disturb their inhabitants. If you come across a nest, it is advisable to immediately walk away, since the presence of a human may prompt the parents to abandon the clutch (eggs, particularly during the early stage of incubation, are most at risk). Additionally, we need to account for the fact that other animals may be observing us, like inquisitive corvids, who have been known to take advantage of researchers' presence to plunder the studied nests. Birds treat humans as a threat to their offspring, hence their attacks on people in parks during spring. Hooded crows are particularly aggressive when young fledglings, still inept fliers, leave the nests. It is important not to take home any young birds unless they are visibly weak, hurt, naked or in immediate danger. In the latter case it's best to move the bird to a safe spot nearby. It's a misconception that parents will abandon a chick that has been handled by a human. If the bird is not fully feathered and the nest it came from is impossible to locate, transporting it promptly the nearest wild animal rehabilitation centre is the best course of action. If the bird is hurt, weak or cold, which is quite a likely scenario for young and not fully-fledged chicks, it should be warmed up. You can start by using the warmth of your hands and later transport the chick to a small cardboard or plastic box



lined thickly with woollen or fleece cloth. For additional protection the chick might be placed in a warm sock or glove, so that only its head sticks out.

Do not use cotton wool or any other material prone to fraying to line the box with the chick as you are running the risk of its leg getting entangled in the threads, which can lead to a serious injury. When the bird is warm and snug, it can be watered with previously boiled and cooled water. If the bird is very weak and cold, the water should be lukewarm. It's safest to administer liquids using a small paintbrush dipped in water and releasing drop by drop on the lower mandible whilst observing if the bird swallows the liquid. In the case of a very exhausted bird, there's no need to open the birds beak – it is enough to drip water on the slit between mandibles or on its tip, and the water will trickle inside the beak. A warm and watered bird should be transported as quickly as possible to a wild animal rehabilitation centre, as mentioned above.

Remember to wash your hands thoroughly after you've been handling chicks!

PHOTOS:

Great Crested Grebe with chicks on its back (Pixabay)

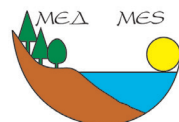
Lapwing chick's camouflage (photo by J. Moczarska)





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BirdWatch Ireland is a non-governmental organization with a public benefit status, dealing with the protection of wild birds and the places where they live. The aim of the Society is to preserve the natural heritage for the benefit of present and future generations. BirdWatch Ireland is the Irish partner of the global federation of bird protection societies - BirdLife International.



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