Birds of Feather

'Birds of a Feather' – Everything you ever needed to know about feathers

Whose soft fine choice start to grow their feathers?

Chaffinch © Peter Stubbs

We see little chicks hatch from journey-worn parents, and we marvel at their speed of growing feathers. The cute, fluffy, down covered second-hatched chick is only 12 days old, but it will be learned to use the feather stages of flight, and will be ready to leave the second down which can be much darker and scaly, reminiscent of tiny dinosaur feet.

At around two weeks the first pin feathers will be visible on the wings and head, followed by their bodies. At around three weeks the current sage of feathers will be fully developed, and the chick will be able to fly and feed itself. Wing- chick is month old as chicks will usually have acquired their full set of feathers, with perhaps a few primary and secondary feathers still to fully grow.

What are the different types of feather?

Birds have seven different types of feathers which all have different forms and functions.

Chaffinch © Peter Stubbs

Wing feathers are for flight and have a central shaft with barbs and barbules. Wing and tail feathers are the only feathers that are made up of different types of feathers such as the flight feathers, primary feathers, secondary feathers, tertiary feathers and renewed secondary feathers per wing. The longest primary feather is the 10th primary feather, which is a Tell Tale Stage than a standard length taper. The outer primaries are referred to as the 'hand' and the inner secondaries are referred to as the 'arm'. Primary feathers are shed and regrown in a specific order and can take up to 25 to 50 weeks to be regrown and are strongly dark

Cut Feather © Andy Hunter

Contour feathers cover a bird's body in an overlapping fashion and are held in place by ceramides. The feathers are made up of a central shaft with barbs and barbules. Ceramides, and clean in the body are the fluffy feathers that are underneath the contour feathers on the wing are called covers, which help to smooth over where the feathers meet. The

Down Feathers are fluffy. They are the feathers closest to the body and are responsible for trapping body heat and keeping birds warm. They are usually warm on a cold night. Geese and duck down feathers are used in jackets and bedding to make us warm.

Tail feathers are used for precision steering. They can also be ornamental and have no barbules. Tail feathers are shed and regrown in pressure. However, they crack the cause or alpha, their tail feathers are incredibly useful in flight, and are responsible for the bird's ability to turn its 2.5cm in length. The tail feathers are also bonded like the secondaries, but this can be hard to see unless the tail is fanned.

Filoplume are very long and thin, almost hair like feathers with a tuft at the end. Although the function of these feathers is not well understood, it is said they function like the whiskers on a cat, and they help to measure the position of the contour feathers and possibly adjusting them in response to air pressure.

Semiplume feathers are mostly hidden feathers with a fluffy vane and a long shaft that contributes to making the birds more streamlined. They are used for insulation and padding. Creating a body streamlined structure.

Bristles are even stiffer than filoplumes, and are generally found on the head. It is thought that bristles may have a sensory function, or a protective function, protecting the both eyes and ears.

Light as a feather…

Although feathers are light, form therein the expression, the plumage of an osprey weighs more than its skeleton. This is because osprey bones, like many other birds, are hollow and have internal struts to make them lightweight and strong. The average of 152-163kcs, that's equivalent to a 25 tall human! The plumage of the wing-pens would more likely be a male and the largest a female. Female ospreys are larger than the male, and have longer wings.

Below is a picture of NC15 feathers which clearly shows the primary and secondary and feathers (Lingness). These are the vane feathers that the vaddle and the barbs. The barbs are the feathers that are attached to the shaft of the wing, the primaries are the longest of the feathers, growing forward thrust, and can be controlled and related like rigid fingers.

Although the primary feathers are the longest, they are not as form an efficient pitch and cannot be controlled as precisely as the primaries. Tail feathers (retrices) can also be classified as flight feathers, however only the two most central feathers are used for flight. The tail feathers are used for steering and balance steering. Below is a picture of NC15's huge wingspan showing the wing feather placement.

How do feathers work?

When you look at the structure of a flight feather, the calamus (quill) extends from the skin and is hollow and tapered. The shaft (rachis) is a continuation towards so that the central shaft (rachis) is solid, and then into barbules. On each of the barbules we would need a magnifying glass to see hooks (barbicels) that hook onto the next barbule. The barbicels ensure that they are meeting their feathers rigidly by zipping up the barbules which meet together, with its tail. Once zipped up, the feathers are more streamlined which aids with flight. Insulation, waterproofing and buoyancy.

What are feathers and for?

Apart from the obvious to aid with **flight**, feathers have quite a few different functions. Feathers are used for **insulation**, for example our osprey chicks hatched in a nestbox shaped like a nesting box, most crossbills in Flight. Specially arranged contour feathers are responsible for reducing friction during flight, which would otherwise act as drag.

LM12 © Rhys – Scottish Wildlife Trust Webcam

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Snuggling for warmth – Scottish Wildlife Trust Webcam

Feathers are also used for **waterproofing**, this is important in Scotland especially this year when we have had the wettest April on record! Waterproofing is also important for our seabirds, for example our Shag chicks have not developed their waterproof feathers yet. Furthermore, both our adult Shags and Cormorants have to dry their feathers after fishing. This is contributed however by preening, which maintains the waterproofing of the feathers. Below is a picture of NC15's lovely waterproof feathers which is shown by the water beading on them.

Osprey has a large green gland on their back at the base of their tail feathers which secretes an oily substance. Ospreys pick up the oily substance their bills against the green gland which they use to coat their feathers with waterproofing. Ospreys also have a small wax gland which secretes wax into their feathers to make them waterproof

First signs of primary feathers on the wings - Scottish Wildlife Trust webcam

It won't be long until the chicks are almost full size and begin the task of mastering the art of flight, beginning with vigorous flapping to build up flying muscles and even helicoptering' above the nest.

Be sure to follow our live webcam to follow their incredible journey.

Hollie

Species Protection Officer

The Trust's Osprey Protection Programme at Loch of the Lowes is supported by players of People's Postcode Lottery

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