

BIRDING IN S.E. MICHIGAN

A BIRD, and it's FEATHERS

Feathers are one of the most prominent features of a bird's anatomy, and they are unique to birds. Every bird has feathers and everything that has feathers is a bird. Feathers perform a number of functions for a bird.

Firstly, they provide insulation, this is very important in a warm blooded animal (body temperature of most birds is maintained at around 40C). It is believed by most scientists that this insulating effect was the primary force driving the evolution of feathers, i.e. ancestral birds developed feathers to keep themselves warm. Feathers also protect birds from UV light.

Secondly, feathers allow for flight. Scientists believe that flight evolved in birds as a result of their possessing basic feathers and that this added selective pressure to the evolution of feathers making them larger, stronger and refining their structure. Thirdly, feathers control what a bird looks like. A plucked chicken or pigeon looks very different to a fully feathered one. Feathers supply the bird with colours allowing for camouflage and secondary sexual characteristics and sexual display. Consider the tail feathers of a peacock.

Feathers evolved from reptilian scales, and in fact birds still possess scales in the lower parts of their legs and feet. Feathers grow quickly and are then sealed off at the base. Once fully developed a feather is a dead matter like your finger nails, though there are still muscles attached the base of each feather which can move each individual feather to help keep it in place. Feathers do

not last for ever, they become worn and battered and are replaced regularly by the bird once or twice a year depending on species. This replacing of old feathers is called 'MOULT' or the moult or moulting.

Feathers have a basic form of a central hollow supporting shaft called a 'rachis' and a number of fine side branches. These side branches have even finer sub-branches in contour feathers. The side branches in these are called barbs and are linked together by a set of barbules and their hooklets sometimes called 'Hamuli'. Barbs have side branches of their own called barbules. The upper ones containing a series of hooklets and the lower ones without hooks but slightly convex in form to catch the hooklets of the barbules from the next barb along the shaft. This is perhaps best understood by seeing the diagram.

The base of the feather - where there are no side branches - is called the calamus or quill and at the base of this is the hollow entrance that was used by blood veins to carry nutrients to the growing feather when it was alive, this is called the inferior umbilicus.

The gripping effect of any one set of barbule hooklets is not great, but like the threads that hold your clothes together the combined effect is sufficient to keep the feathers together. Playing with any wing feather can demonstrate the affect of these tiny attachments. The overall presence of all these barbs and barbules together is called the vane of the wing. The rachis and the vane are the two parts of the feather you see with the naked eye.

INTERESTING FEATHER FACTS

**Feathers are made of keratin, a protein which is also used to make horn and hair by different animals and beaks by birds.*

**Owls have the outer ends of their flight feathers lacking in barbules, i.e. they are unzipped - this makes the edges softer and reduces the noise they make, silent flight helps an owl catch its prey.*

**The number of feathers a bird has depends very much on its size and where and how it lives, in general a third of a birds feathers are on its head.*

**The bird with the least feathers is the Ruby Hummingbird with only 940 feathers in total*

**The bird with the most feathers is the Whistling Swan which can have as many as 25,000 during winter.*

**The longest feathers in the world belong to an ornamental chicken bred in Japan in 1972, this specimen had tail feathers 34.75ft long.*

**The longest feathers of a wild bird belong to the Crested Argus Pheasant *Rheinartia ocellata* which commonly reach lengths of 5.7ft.*

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