Only birds evolved feathers, but many other species have genes for them, too

Feathers are like eyes or hands. They're so complex, so impressive in their adaptations, so good at getting a job done, that it can be hard at first to believe they evolved. Feathers today are only found on birds, which use them to do things like fly, control their body temperature, and show off for potential mates. The closest living relatives of birds–alligators and crocodiles–are not exactly known for their plumage. At least among living things, the glory of feathers is an all-or-nothing affair.

But the more we get to know feathers, the more we can appreciate how they evolved. The general rule is that complex things–be they feathers, hands, or eyes–take a very long time to evolve. As I wrote in *National Geographic* in 2011, the fossil record has gone a very long way in helping us to understand how feathers took on the form we see today. Birds evolved from dinosaur ancestors, and those ancestors already had feathers. Feathers started out as simple filaments, turning to fuzz, and then diversifying into a lot of different forms–including the ones that eventually let birds take to the air.

Now a new study in the journal *Molecular Biology and Evolution* offers an even deeper look into the history of feathers. Instead of looking at fossils, the scientists look at the genetic recipe for feathers written in the DNA of birds. It turns out that a lot of that recipe already existed hundreds of millions of years before anything vaguely resembling a feather existed on Earth. In fact, you, my fine unfeathered friend, have most of the genetic information required for making feathers, too.

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