# Earliest birds acted more like turkeys than common cuckoos

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The earliest birds acted more like turkeys than common cuckoos, according to a new report in the November 6th issue of *Current Biology*, a publication of Cell Press. By comparing the claw curvatures of ancient and modern birds, the researchers provide new evidence that the evolutionary ancestors of birds primarily made their livings on the ground rather than in trees.

“The claws of Mesozoic birds and their immediate ancestors, the non-avian theropods, are relatively ‘straight’—most like [those] of birds that are now either specialized for walking on the ground or have a preference for it, rather than the highly curved claws of birds that spend a lot of time in trees,” said Christopher Glen of the University of Queensland. “We were particularly surprised by the fact that all the fossil species, representing evolutionary lineages from non-flying ancestors to early flying birds, had claws more like modern birds that spend most of their time on the ground.”

The origin and early evolution of birds has long been a major topic of debate in evolutionary biology, the researchers said. Throughout the 20th century, the issue was generally polarized into those who argued that birds had a ground-based ancestor and those who believed birds evolved from an arboreal ancestor, a “false dichotomy that has hindered progress in the field,” they continued.

In the new study, Glen and his colleagues suggest that part of the problem is the loose categorization of many living bird species as either

ground- or tree-dwellers on the basis of their hind limbs when, in reality, these are not mutually exclusive alternatives. Rather, birds exhibit differing degrees of ground- and tree-based behaviors and would be better placed along a continuum according to the proportion of time spent on ground versus tree foraging.

To test the idea, Glen's group first analyzed the toe claws of 249 species of recent birds, revealing that their claw curvatures increase, becoming more hooked, as tree foraging becomes more predominant. They then compared the claw curvatures of modern birds to those of the fossilized ancestors of birds.

"In summary," they concluded, "since claw angle is independent of body size and the evolutionary relationships among species, it is a reliable indicator of the predominant behavior reliant upon hind-limb locomotion, and can make an important contribution to reconstructing the 'ecomorphology' of fossil species—how they lived and used their environments. Our findings suggest early birds foraged predominantly on the ground, rather than supporting previous suggestions of arboreal claw adaptations, which appear to have evolved later in the lineage."

Source: Cell Press