Scientists reveal new picture in the evolution of flightless birds

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Because of their far-flung geography and colorful examples including the African ostrich, Australian emu, New Zealand kiwi and long lost giants such as the New Zealand moa, Baker, et. al. have examined a fascinating part in the story of the avian tree of life: flightless birds, or ratites.

Straddling the middle ground is the South American tinamous which can fly, and thus were not grouped within the flightless ratites but rather considered as close relatives according to the shared structure of their palate bones. In contrast, recent molecular studies have suggested they may be more closely related to the extinct moa within the ratites.

To help pin down the evolutionary debate, Baker's research team utilized ancient moa DNA (from the extinct little bush moa) along with DNA from emus and other flightless birds to assemble the largest dataset to date (1448 genetic loci and 8 corroborating rare genomic events).

Their results, published in the advanced online edition of *Molecular Biology and Evolution*, found convincing evidence that tinamous are indeed most closely related to the wingless extinct moa, and thus flight has been lost independently in ratite lineages. They showed that morphological characters of ratites interpreted on their molecular tree are mostly convergent, evolving independently, probably as an adaptation to a cursorial, "on-the-run" lifestyle.

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