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PUBLIC LECTURE

The evolutionary origin of avian flight

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Dominique Homberger Professor, Department of Biological Sciences,
Louisiana State University

Gould Seminar Room, (Rm 235) Gould Building (Bldg. 116), Linnaeus Way, ANU



Bird flight, in contrast to insect and bat flight, depends on feathers to create large airfoils on the limbs and tail and a fusiform body shape. While various functions have been hypoyrsized to have been selected for the evolution of a plumage in birds, such as thermal insulation and signaling, my presentation will show that the plumage serves many functions simultaneously, and that the most fundamental function is to render the body aerodynamically streamlined. Equally important for avian flight are feathers that serve as air flow sensors and as microturbulators. Other structures that have evolved to support flight include an extensive smooth musculature to control the movement of the feathers, and a beak instead of a dentition to complete the fusiform body shape. Possible precursor structures of feathers are found in the skin of arboreal lizard-like squamates with imbricated scales, but not in the skin of alligators with plate-like scales, which are similar to those found in dinosaurs. It may, therefore, be necessary to re-examine the hypothesis of dinosaur origin of birds.

Presented by

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Contact details

E jennie.mallela@anu.edu.au T 02 612 52534
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