

鳥類の翼と足跡の形態学的研究～足跡化石の“かたちと大きさ”から絶滅鳥類をどこまで復元できるのか? ～
Avian wing loading and aspect ratio correlate with track

田中 郁子^{1*}
TANAKA, Ikuko^{1*}

¹ 神戸大学大学院理学研究科

¹ Graduate School of Science, Kobe University

Avian have two completely different styles of locomotion, flight and bipedal walking, and use them properly depending on situations. Avian track shapes are divided into three groups corresponding to habitat types, suggesting bipedal walking is controlled by habitats. Is flight, another locomotion type, controlled the same? To investigate it, we obtained data of wing shapes and bodyweights from modern birds, and examined if they showed similar groupings related to habitats. Multiple regression analyses reveal that wing loadings and wing aspect ratios for birds in each group defined by track shapes exhibit separate clusters that do not overlap with each other. This result shows that wings are also divided into three groups corresponding to habitat types, the same with track shapes. Thus, habitats unambiguously affect avian flight as well as walking. Past avian wings are seldom remained as fossils, whereas past avian tracks are often preserved fossilized. The correspondence relation between wing aspect ratio/wing loading and track shapes may constrain the past avian flight ecology and behavior from fossilized track records.

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