

SEEWIESEN

LECTURE SERIES

FALL/WINTER 2018/19

Max Planck Institute
for Ornithology



MAX-PLANCK-GESELLSCHAFT

THURSDAY | December 6th, 2018 | 13 P.M. | HOUSE 4 LECTURE ROOM

ELIOT MILLER

Cornell University and the Macaulay Library | Host: Baldwin Research Group

Woodpecker plumage evolution: mimicry, convergence, or neither?

The external appearance of an organism reflects selection from multiple drivers, including abiotic factors such as climate and substrate, and potentially biotic factors such as sexual selection and mimicry. Woodpeckers are an excellent group to examine how external phenotypes evolve because they occupy a broad range of climates across many habitats, and display patterns of rapid divergence and striking convergence. Here we show that both habitat and climate profoundly shape plumage evolution. However, we also find a strong signal that many species exhibit remarkable convergence not explained by these factors or shared ancestry. Instead, this convergence is associated with geographic overlap between species, suggesting occasional, strong selection for interspecific mimicry. Consequently, both abiotic and biotic factors, including interspecific interactions, are potent drivers of phenotypic evolution.

WHO IS ELIOT MILLER?

2014	PhD University of Missouri, St. Louis, USA
2014	National Science Foundation Postdoctoral Fellow, University of Idaho, USA
2016	Rose Postdoctoral Fellow, Cornell Lab of Ornithology, USA
2018	Collections Development Manager, Macaulay Library, Cornell Lab of Ornithology, USA

SELECTED PUBLICATIONS

- Miller, E.T., G.M. Leighton, B.G. Freeman, A.C. Lees, & R.A. Ligon. In revision. Climate, habitat, and geographic range overlap drive the evolution of avian plumage phenotypes. *Nature Communications*.
- Miller, E.T., D.N. Bonter, C. Eldermire, B.G. Freeman, E.I. Greig, L.J. Harmon, C. Lisle, & W.M. Hochachka. 2017. Fighting over food unites the birds of North America in a continental dominance hierarchy. *Behavioral Ecology* 28:1454-1463.
- Freeman, B.G., & E.T. Miller. 2018. Why do crows attack ravens? The roles of predation threat, resource competition, and social behavior. *Auk* 135:857-867.
- Miller, E.T., S.K. Wagner, L.J. Harmon, & R.E. Ricklefs. 2017. Radiating despite a lack of character: ecological divergence among closely related, morphologically similar honeyeaters (Aves: Meliphagidae) co-occurring in arid Australian environments. *The American Naturalist* 189:E14-E30.

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