Matthew Fuxjager
Assistant Professor of Biology at Wake Forest University
Winston-Salem, NC, US
Fuxjager's research focuses on the interplay between sex steroids and social behavior and how evolution influences species variations.

Description
Matthew Fuxjager is a biologist whose research program overall is quite integrative, combining concepts and techniques from the fields of physiology, neurobiology, ethology and evolution.

He studies the physiological mechanisms of complex social behavior and how evolution shapes these mechanisms to influence species variation in social traits.

Fuxjager's research mainly focuses on the interplay between sex steroids and behavior. Currently, he is using birds to pursue this line of work, including manakins - tropical birds that perform acrobatic courtship displays - and downy woodpeckers which are temperate birds here in North Carolina that vigorously defend territories.

He also has very broad interests in the endocrine basis of behavior and is comfortable working in a range of vertebrate models, most recently the Bornean rock frog.

Topics
Zoology, Animal Social Behavior, Courtship Displays, Androgenic Hormones, Neuromuscular Systems

Education
University of Wisconsin - Madison
Ph.D. Zoology

University of North Carolina at Chapel Hill
M.S. Biology

Pomona College
B.A. Neuroscience

Media Appearances
Wake Forest University biologist and lead author of the study Matthew Fuxjager, who studies the biochemistry of mating behavior in tropical birds, says two species of manakins—the red-capped and golden-collared manakins—developed these superfast muscles to perform loud, acrobatic movements for prospective mates.

This sort of behavior is nothing new in the evolutionary world. Animals—and usually male animals at that—do all sorts of crazy things to get a female to choose him. Biologists call that process sexual selection, and the easiest way to think about it is "survival of the sexiest." Females will choose mates based on a usually exaggerated and wildly impractical trait the males have.

A new study from Wake Forest University has revealed that highly territorial downy woodpeckers interpret the sounds of their neighbors' bill drumming to distinguish a friend from a foe. If breeding pairs sense there is a threat, they will then act cooperatively to defend against intruders.

A team of Wake Forest undergraduate students, led by graduate student Eric Schupee and assistant professor of biology Matthew Fuxjager, investigated how woodpecker pairs perceive their enemies' drummings to learn more about how their perceptions influence territorial interaction and coordination of defensive behavior.

"We tested whether the evolution of these waving displays in males is marked by a change in how hormones, like testosterone, influence the muscles that control limb movement," said Fuxjager, a Wake Forest biologist who studies physiological and behavioral mechanisms of animals, especially those influenced by hormones.

Woodpeckers that listen to others of their kind drum into trees alter their behavior based on what they hear.

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