

SEEWIESEN

Max Planck Institute
for Ornithology

LECTURE SERIES

FALL/WINTER 2017/18



MAX-PLANCK-GESELLSCHAFT

THURSDAY | OCTOBER 26, 2017 | 13 P.M. | HOUSE 4 LECTURE ROOM

JASMINE LOVELAND

Max Planck Institute for Ornithology | Host: Küpper Research Group

Social status and the brain: lessons from the African cichlid (*Astatotilapia burtoni*)

Aggression is an evolutionary conserved social behavior that is regulated by both environment and genetics. Understanding the neural and genetic basis of aggression is a major challenge in neurobiology especially since the extent of environmental and genetic contribution may vary between systems. A great deal of what we know about neurobiological differences in naturally occurring subordinate and dominant phenotypes comes from species in which social rank is reversible and based on the social environment. In this talk, I will present my previous work on *Astatotilapia burtoni*, an African cichlid with a socially controlled dominance hierarchy and well-characterized differences along the hypothalamic-pituitary-gonadal (HPG) axis. I will highlight differences between vasotocin and serotonin neurons in subordinate and dominant males and present a model for how their interactions could regulate aggression. With this background I will lead into my current research on the Ruff, *Philomachus pugnax*. In the Ruff, the evolution of a social system with three genetically determined male morphs was facilitated by an inversion event on an autosomal chromosome 3.8 million years ago. How did this chromosomal aberration lead to the distinct aggression profiles, mating strategies, breeding plumage and endocrinal profiles observed among the morphs? We are in a unique position to begin to answer these questions and discover neuroanatomical and gene expression differences across male morphs that will help us better understand their evolution.

WHO IS JASMINE LOVELAND

- 2004** BA, Evolutionary Biology and Animal Behavior, Hampshire College, Massachusetts, USA
2008 MSc, Biology, Smith College, Massachusetts, USA
2014 PhD, Biology, Stanford University, California, USA
2014 - 2017 Postdoctoral researcher, Center for Mind/Brain Sciences (CIMeC)
 University of Trento, Rovereto, Italy
2017 - Present Postdoctoral researcher, Behavioural Genetics and Evolutionary Ecology Research Group, MPIO

SELECTED PUBLICATIONS

Loveland JL, Fernald RD. (2017) Differential activation of vasotocin neurons in contexts that elicit aggression and courtship. **Behav Brain Res** 317: 188–203

Di Giorgio E*, Loveland JL*, Mayer U, Rosa-Salva O*, Versace E*, Vallortigara G. (2016) Filial responses as predisposed and learned preferences: Early attachment in chicks and babies. **Behav Brain Res** 325: 90-104

Juntti SA, Hilliard AT, Kent KR, Kumar A, Nguyen A, Jimenez MA, Loveland JL, Mourrain P, Fernald RD. (2016) A neural basis for control of cichlid female reproductive behavior by prostaglandin F2 α . **Current Biology** 26, 943-949

Loveland JL, Uy N, Maruska KP, Carpenter RE, Fernald RD. (2014) Social status regulates the serotonergic system of a cichlid fish, *Astatotilapia burtoni*. **J Exp Bio** 217, 2680-2690

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