

FACULTY DEVELOPMENT ENDOWMENT FUNDS

Faculty Research Fund

Award Date: Spring 2018

Proposal Title: Energetic trade-offs in Collared Lizards (*Crotaphytus collaris*) in a broader context.

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ABSTRACT

Animals have a limited amount of energy for survival in the wild. Throughout the life of an organism, energetic trade-offs are often required for specific life history events, such as reproduction, immunity, behavior, and stress responses. With the introduction of novel anthropogenic environmental changes, there is a need to characterize physiological trade-offs in taxonomic groups that are traditionally underrepresented in scientific inquiry. The goal of this work is to study the physiological trade-offs during reproduction in the collared lizard (*Crotaphytus collaris*) between the stress response and self-maintenance (immunity). The intention is to quantify the interconnected response between the stress, endocrine, and immune functions to define biological markers to assess health of wild populations.

Using the collared lizard as our model is key due to our collaborative work with Dr. Matthew Gifford of University of Central Arkansas, Dr. Alan Templeton from Washington University, Wade Ryberg from Texas A&M University, and MDC employees Calvin Manginel and Shelby Timm. The long-term data set with marked individuals and genetic data are rare assets in using physiological markers to assess health. By combining our research to this study system, we can provide a truly unique picture of these imperiled populations by integrating ecology, evolution, and physiology.