

# **A GUD Toolbox: Implementation of Giving-Up Densities with Mammals**

Jordan Tandy, Karissa Coffield, Kundil Patel, Brandon Preston, L. Mike Conner, Andrea K. Darracq

Murray State University

## **Abstract**

Giving-up densities are the density of food remaining within an artificial foraging patch over a specified time and are an indicator of how an organism perceives its environment. The GUD method is particularly useful to study the foraging behavior of an organism relative to predation risk and interactions with other environmental variables (e.g., cover, conspecifics, and food quantity and quality) to address larger ecological and evolutionary questions. The GUD methodology is commonly used with the mammalian taxonomic group due to their general size, detectability, and abundance in comparison to other taxa. However, development of protocols that maximize the potential for success of GUDs in the field can be a barrier to the implementation of GUD methodologies to address ecological and evolutionary questions. Thus, we will synthesize protocol information from mammalian studies that implemented GUDs to act as a resource for scientists planning to implement GUDs in their research and/or teaching. By increasing access to the GUD methodology, we hope to further research in ecology and evolution and implementation of these tools in teaching.

**Keywords:** Giving-up density, predation risk, food availability, methodology, mammals, foraging behavior