**Summary Report from Short-term Visit: Jack Hopkins**

The functional response in ecology is the intake rate of a consumer as a function of prey densities. The functional response is notoriously difficult to estimate using standard observational data. During the short-term visit, we developed a statistical framework to integrate two previously unconnected sources of ecological information to aid in the estimation of the functional response: population abundance measures for consumers and prey and consumer dietary proportions derived from stable isotope data. Although both sources of data have been used independently to learn about the dynamics of food webs, we found that combining these data sources allow us to make significantly improved inferences about the functional response of consumers. We use stable isotope data to estimate dietary parameters for consumers because these data can be collected at a relatively low cost from rare or elusive animals through time. In particular, researchers can collect stable isotope data derived from the tissues of consumer and their prey using noninvasive genetic sampling in the field and from museum collections (for retrospective analyses). Stable isotope mixing models are then used to estimate the relative contribution of important food sources to the diets of consumers. We conducted several preliminary analyses during the short visit and plan on submitting two manuscripts detailing this work in the fall of 2015.

**Participants**

Jake Ferguson

Postdoctoral Researcher, National Institute for Mathematical and Biological Synthesis, University of Tennessee, 1122 Volunteer Blvd., Suite 110A, Knoxville, TN 37996-3410, USA

Jack Hopkins

Postdoctoral Scholar, University of California San Diego, Division of Biological Sciences, Ecology, Behavior, and Evolution Section, 9500 Gilman Dr., #0116, La Jolla, CA 92093-0116, USA