Scaling relationships between body size and energy flow in an apex predators

Amphibians are essential to ecosystem function, and with roughly one third of all species facing extinction, it is important to understand the potential consequences of species losses and/or population declines for energy flow. Despite historical approaches to population ecology that consider all members of a species as functionally equivalent, recent studies indicate that individual body size significantly impacts an individual's ecosystem function, with larger individuals being disproportionately more important to energy flow. Larval salamanders of the genus *Ambystoma* often represent the dominant vertebrate predators in fishless pond ecosystems, and they exhibit ontogenetic shifts in density and prey choice wherein population densities decline over time while increasing in average body size. We therefore sought to assess: a) whether energy flow exhibits linear relationships with larval body size; and b) how contributions to energy flow compare among large and small individuals when accounting for relative densities of each size class in natural pond communities. Densities of larval *Ambystoma opacum* and *A. maculatum* were determined from field studies conducted in 2006-2008, and gut contents were extracted from individuals representing a wide range of body sizes. Ash-free dry mass (AFDM), a commonly used surrogate for "energy", was determined for all larvae and regressed against body size and density-corrected estimates of larval biomass. Analyses are currently underway, and our results will characterize the importance of larval salamanders in energy flow in aquatic systems, as well as possibly highlight the unique value of large individuals in nutrient cycling.