

Research team name: Medley lab

Research team mentors:

Principal Investigator: Kim A. Medley, PhD, Director, Tyson Research Center
Medleylab.weebly.com

Post-doctoral research associate: Solny Adalsteinsson, PhD, Post-doctoral research associate, Tyson Research Center

Post-doctoral research associate: Katie Westby, PhD, Post-doctoral research associate, Tyson Research Center

Lab manager: Beth Biro, M.S., Field Station Ecologist and Lab Manager, Tyson Research Center

Research foci for summer 2017:

Our lab studies the ecology and evolution of mosquitoes and ticks as vectors of disease. We use a variety of tools to address basic and applied questions in both systems. Our projects for summer 2017 include:

- Investigating the role of controlled burns in multiple disease transmission cycles that involve ticks, snails, birds, and large ungulates
- Indirect effects of predation on parasite prevalence in mosquitoes
- Effects of detritus on parasite burden via changes in the gut microbiome of larval mosquitoes
- The role of human-aided movement and land use on gene flow between urban and sylvatic mosquito populations

Skills/techniques/methods:

Fellows can expect to gain exposure to multiple aspects of the scientific process from experimental design to dissemination of results. Independent research projects are encouraged for motivated students; fellows conducting independent projects can expect to design their own study, analyze the data, and potentially publish their work in peer-reviewed journals with guidance from post-docs and faculty. Skills learned will likely include trapping and collecting a variety of animals (including ticks and mosquitoes) in the field; identifying endo-parasites, ecto-parasites and mosquitoes in the lab; maintenance of mosquito colonies; using mist nets and dry-ice baited traps to collect animals; and potentially molecular techniques (e.g. DNA extraction and PCR).

Research conditions:

Fellows can expect to split their time between field and lab work. The ratio will depend on the nature of independent projects that are pursued, but currently planned research will be approximately 50/50 field/lab.

Team structure and opportunities for independent research:

Our summer research group will be composed of a principal investigator (P.I.; Medley), two post-doctoral research associates (Adalsteinsson and Westby), a lab manager (Biro), 2-3 undergraduate fellows, and one high school fellow. Undergraduate fellows are mentored directly by post-docs on day-to-day work, and the lab meets with the PI weekly (usually in the form of a lab lunch); fellows are encouraged to meet with the PI as needed.