1158-92-191   **Suzanne Sindi***, 5200 North Lake Road, Merced, CA 95340. *Ectoparasites and Malaria: Outcomes from Collaborative Workshops for Women in Mathematical Biology.*

I will describe two research projects that began at Collaborative Workshops for Women in Mathematical Biology.

First, we model the interactions between social organization and allogrooming efficiency to consider how parasitic threats may have shaped the evolution of social behaviors. We consider several dynamic models of social organization the varying levels of social grooming and find that allogrooming may interrupt parasitic epidemics in two meaningful ways: protection against increasing individual parasitic load via parasite reproduction and protection against spread of parasites among hosts.

Second, we consider the dynamics of Malaria, a vector-borne disease responsible for >400K deaths per year. Malaria control efforts are focused at the national level, but movement of individuals between countries may complicate elimination efforts. Here, we consider the case of neighboring countries Botswana and Zimbabwe, connected by human mobility. We use a two-patch Ross-MacDonald Model with Lagrangian human mobility to examine the coupled disease dynamics between these two countries. We find that dynamics and interventions in Zimbabwe dramatically influence pathways to elimination in Botswana, largely driven by Zimbabwe's population size and larger basic reproduction number. (Received March 01, 2020)