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Holly D Gaff* (hgaff@odu.edu), Dept of Biological Sciences, 110 MGB, Old Dominion University, Norfolk, VA 23529. *Estimating tick-borne disease risk with an agent-based model.*

Ticks have a unique life history including a distinct set of life stages and a single bloodmeal per life stage. While some tick species have a single preferred host for each life stage, other tick species will feed on a variety of hosts. All of this makes tick-host interactions more complex from a mathematical perspective. In addition, any model of these interactions must involve a significant degree of stochasticity on the individual tick level. In an attempt to quantify these relationships, we have developed an individual-based model of the interactions between ticks and their hosts as well as the transmission of tick-borne disease between the two populations. Preliminary analysis of disease prevalence as a function of host diversity is presented. (Received August 18, 2010)