1135-92-573 **William F. Fagan*** (bfagan@umd.edu), Dept. of Biology, University of Maryland, College Park, MD 20742, and **Sharon Bewick**, **Jeffery Demers**, **Folashade Agusto**, **Justin M Calabrese** and **Bingtuan Li**. *How different disease transmission modes (vector-borne and sexual) and different dispersal types (vector and host) affect the spread speed of a Zika virus invasion.*

Increasing human mobility and globalization transport invasive species into new regions. Invasive diseases have particularly dire implications, as demonstrated by the arrival of Zika virus in the Americas. Invasive diseases may spread rapidly from their point of introduction. However, unlike most invasive organisms, the rate of spread of invasive diseases depends less on the dispersal characteristics of the disease itself, and more on the dispersal characteristics of the disease host(s). Because vector-borne diseases involve multiple hosts, they offer particularly interesting systems for studying disease invasion rates. This is especially true for of Zika, where the different hosts are more/less important, depending on the mode of disease transmission – i.e., vector vs. sexual transmission. Using a reaction-diffusion model, we study how the relative rates of vector and sexual transmission interact with vector and human mobility to determine the overall spread speed of a Zika invasion. Our analysis shows that the balance between transmission mode and host mobility has profound implications for disease invasion rates, even without strongly impacting local dynamics. Ultimately, this offers an explanation for the explosive spread speed of Zika. (Received September 08, 2017)