



NIMBioS

National Institute for Mathematical
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NIMBioS Interdisciplinary Seminar

Dr. Andrew Kanarek
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3:30 p.m.*, January 17, 2012
NIMBioS, Blount Hall, 1534 White Ave, 4th floor

“Ecological and evolutionary consequences of Allee effects in small founder populations of invasive species”

Despite the obvious threats invasive species pose to ecosystem health, studying the characteristics that influence their colonization can provide valuable insight on fundamental issues in ecology, evolution, and biogeography. This talk will focus on the role of intraspecific interactions and the implications of positive density dependence for the establishment and persistence of small founder populations. When individuals experience a low density of conspecifics, one or more components of their fitness may suffer (i.e., component Allee effects) and thus constrain population growth and spread (i.e., demographic Allee effects). This dynamical relationship between fitness and population size can be driven by a myriad of mechanisms, and provides selective pressure for adaptations to overcome Allee effects. In this research, I have theoretically explored how small founder populations can nonetheless succeed when faced with Allee effects and the conditions for a heightened risk of extinction. I will present a reaction-diffusion framework followed by individual-based simulations of increasing complexity in order to demonstrate the ecological and evolutionary consequences of Allee effects that influence successful colonization.

**Join us for refreshments in the NIMBioS Lobby on the 4th floor at 3 p.m.*

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The National Institute for Mathematical and Biological Synthesis (NIMBioS) brings together researchers from around the world to collaborate across disciplinary boundaries to investigate solutions to basic and applied problems in the life sciences. NIMBioS is sponsored by the National Science Foundation, the U.S. Department of Homeland Security, and the U.S. Department of Agriculture with additional support from The University of Tennessee, Knoxville.

