Dynamical models on food web networks

Rosalyn Rael
University of Arizona
Program in Applied Mathematics
Tucson, AZ 85721
(520) 621-1163

rrael@math.arizona.edu

ABSTRACT

Dynamical models on food web networks can reveal behavior that affects the long term stability of an ecosystem. In one study, we considered the effects of extinction on the structural properties of food webs. We used networks simulated with the well-established niche model. We then removed several types of species individually, distinguished by their connectedness and trophic level, and applied a dynamical model to determine the number of secondary extinctions that occurred. I am currently nearing the completion of another project involving the evolution of flour beetles under competition, with plans to pursue a study on dynamic games in food webs. Using evolutionary game theory, I will modify current dynamical food web models to investigate evolutionarily stable strategies on these networks.