

GKE questions for Justin Rigby, from Greg Dwyer

Question 1

Compare the behavior of the continuous time logistic-growth model to the discrete-generation logistic model of May (one source is Biological populations with nonoverlapping generations: stable points, stable cycles, and chaos. *Science* 186:273-275. Reprinted in *Foundations of Ecology*, but you should also read *Simple Mathematical Models With Very Complicated Dynamics*, 1976, *Nature* 261:459-467). How does the behavior of the two models differ, and why does this difference occur? What does the complex behavior of the discrete-generation logistic model imply for our efforts to understand population dynamics in nature?

Question 2

Briefly summarize the argument of Hassell, May and Lawton (1976. *Patterns of dynamical behaviour in single-species populations*. *J. Anim. Ecol.* 45:471-486). What is the relevance of their work for the May papers in question 1? What are some caveats?

Some General Advice

My questions focus on particular papers, but you don't need to slog through every last detail of the papers in your answers. The goal is to focus on general biological issues. In particular, you don't need to describe the details of the math, you can just outline the mathematical arguments.