Lectures on Pure and Applied Math

Research Topics in the Statistical Sciences

Announcing

A Seminar Presentation on May 8, 2013 at 11:30 am Maxcy 200B

at The University of New Haven

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Title: Stochastic multiplicative population growth predicts and interprets Taylors power law of fluctuation scaling

Abstract:

Taylor's law (TL) asserts that the variance of the density of a set of comparable populations is a power-law function of the mean density of those populations. Despite the empirical confirmation of TL in hundreds of species, there is little consensus about why TL is so widely observed and how its parameters should be interpreted. Here, we report that the Lewontin-Cohen (LC) model of stochastic population dynamics leads to a spatial TL in the limit of large time and provides an explicit, exact interpretation of its parameters. TL and the LC model describe the spatial variability and the temporal dynamics of populations of trees on long-term plots censused over 75 years at the Black Rock Forest, Cornwall, NY, USA.

Further Information

Contact Carole McClellan for further information.