Evolution of lotka-volterra predator-prey systems under telegraph noise

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Abstract: In this paper we study a Lotka-Volterra predator-prey system with prey logistic growth under the telegraph noise. The telegraph noise switches at random two prey-predator models. The aim of this work is to determine the subset of omega-limit set of the system and show out the existence of a stationary distribution. We also focus on persistence of the predator and thus we look for conditions that allow persistence of the predator and prey community. We show that the asymptotic behaviour highly depends on the value of some constant A which is useful to make suitable predictions about the persistence of the system.

Author Keywords: Carrying capacity; Lotka-volterra predator-prey systems; Stationary distribution; Telegraph noise

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