1145-92-1586 **Sebastian Schreiber*** (sschreiber@ucdavis.edu), Department of Evolution and Ecology, University of California, Davis, CA 95616. *Evolutionary games in spatially and temporally variable environments.*

Evolutionary game theory provides a framework for studying frequency-dependent population dynamics. Remarkably, the three basic games (the Prisoner's Dilemma, the Hawk-Dove game, and the Rock-Paper-Scissor game) have provided fundamental insights about the evolution of cooperation, animal contests, and Red Queen dynamics. An important, yet often under-appreciated, consideration in these games are the effects of spatial and temporal environmental heterogeneity on the maintenance of coexisting strategies. To model these effects, I will introduce a class of discrete-time, stochastic replicator equations that account for discrete space and stochastic fluctuations in payoffs for the interacting strategies. For these equations, I will describe theorems for stochastic persistence (i.e. the statistical tendency to stay away from low frequencies of any strategy) and asymptotic extinction of one or more strategies. These theorems will be used to characterize persistence and extinction for the hawk-dove and rock-paper scissor games. These characterizations will provide new biological insights about how dispersal rates, spatial and temporal variability, and autocorrelations in this variability influence the evolutionary maintenance or loss of biological diversity. (Received September 23, 2018)