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**Jim Cushing\*** ([cushing@math.arizona.edu](mailto:cushing@math.arizona.edu)), Department of Mathematics, 617 N Santa Rita, University of Arizona, Tucson, AZ 85721, and **Shandelle Henson**. *Evolutionary adaptation of cannibalism in fluctuating environments*. Preliminary report.

Recent observations of breeding and feeding behaviors in colonies of glaucous-winged gulls show distinctive changes during periodically occurring El Niño events. Of particular notice is the significant increase in egg cannibalism during these events. Cannibalism is an example of a behavior that has both negative and positive effects on fitness of individuals in the population. Dynamic models show that under certain circumstances cannibalism can promote population survival in a (constant) degraded environment. Moreover, evolutionary versions of the models show that cannibalism can be an evolutionarily stable strategy. In this talk I consider periodically and stochastically forced versions of these evolutionary models and their predictions about population survival and the evolutionary selection in favor of or against cannibalism. Of the many scenarios that these models predict, one interesting case is when evolution selects in favor of cannibalism in a periodically fluctuating environment, but against it in a constant or a stochastic environment. (Received September 19, 2018)