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Multi-Dimensional Predator-Prey Models.

In this study, we consider predator-prey models with one predator and multiple prey. We begin with an analysis of a one-predator, two-prey system in which there is no competition between the prey. We determine conditions for the existence of a nonzero fixed point and discuss stability. We then generalize our results to the case of a one-predator, n-prey system. Using this generalized system, it is possible to display certain characteristics of the system with regards to introduced prey species and behaviors of arbitrarily large ecosystems. (Received September 25, 2012)