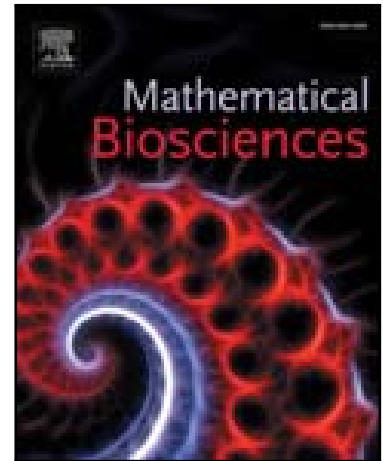


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Prey dynamics under generalist predator culling in stage structured models

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Abstract

In this paper, by means of mathematical dynamical models we investigate the impacts of predator culling on a prey population structured in two stage classes, juveniles and adults, assuming stage specific predation by two generalist predators with functional responses type 2 and 3 in all possible combinations. According to the chosen set of parameter values, these impacts can manifest through possible demographic Allee effects, sustained population oscillations, alternative stable states (e.g., predator-pit-like behavior) and Hydra effect, which are all discussed, in turn, in terms of species conservation, harvest yield and pest biological control

Keywords: Stage dependent predation, functional response, alternative stable states, unstable limit cycle, hydra effect.

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