

# **Stability and optimal harvesting in a stage structure predator-prey switching model**

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This paper is concerned with a stage structure predator-prey interaction where the prey is a stage structure with two life stages immature and mature. The predator consumes both the young and adult of the prey and the prey population is more prone to predator at higher densities. Local and global stabilities of the equilibrium sets are discussed. With harvesting for the mature population we obtain conditions for a threshold of the harvesting for sustainable yield. Keywords: Stage structure, Local stability, Global stability, Optimal harvesting, Switching