

PREY-PREDATOR DYNAMICS UNDER SMITH GROWTH RATE AND ALLEE EFFECT WITH HUNTING COOPERATION

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ABSTRACT. The object of the present article is to analyze the stability and different types of bifurcations of a prey-predator model with Smith growth rate in preys possessing Allee effect where as predators exhibit hunting cooperation. Results are deduced analytically and illustrated graphically by proper numerical simulations. The existence of transcritical, saddle node and Hopf bifurcations has been established for change of the Allee threshold parameter. The joint variation of Allee threshold and hunting cooperation parameter creates BT and cusp bifurcation.

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