

A PREY-PREDATOR MODEL WITH A COVER PROPORTIONAL TO SIZE OF THE PREY AND AN ALTERNATIVE FOOD FOR THE PREDATOR

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Abstract

The present paper is devoted to an analytical investigation of a two species prey-predator model. Predator is provided with a limited resource of food in addition to the prey and a cover to prey proportionate to its population to get protection from the predator. The model is characterized by couple of first order non-linear ordinary differential equations. All the four equilibrium points are identified and their stability discussed. Solutions for the linearized perturbed equations are found and results are illustrated. The global stability is discussed by using the Lypunov's method.