Abstract

Most of the ecological systems have the elements to produce divisions and dynamics behavior, and food chains are ecosystems with familiar structure. Modeling efforts of the dynamics of food chains which are initiated long ago confirm that food chains have very rich dynamics. This work focused on applying biological mathematical model to analyzing predation or competition relationships in the natural environment between predators and preys. We are interesting to consider two species of animals; interdependence might arise because one species (the “prey”) serves as a food source for the other species (the “predator”). Models of this type are thus called predator-prey models. Initially, we exercised the mathematical model of one prey and one predator. Later on, we considered very excited model that dealing with one predator and two preys. The populations of the prey and predator will be modeled by two differential equations for the early case and with three differential equations for a later model. The Matlab command ode45 can be used to solve such systems of differential equations.

**Index Terms**

Computer Science

Information Sciences

**Keywords**

Predation, ecosystem, differential equation, Lotka-Volterra model.