On mathematical model of Bats' Roost Searching Strategies

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Abstract

On the basis of cavity roosting bats' behavior living in Białowieża Forest a mathematical model of their searching strategies is presented. We present a dynamical system describing a way of roost finding, appropriate for a certain species of bats, which consists of two nonlinear difference recursive equations of a special form. In the paper, stability of stationary solutions of the considered system is examined. Stationary solutions in a biological interpretation mean points, where are tree cavities with habitat conditions suitable for a certain species of bats. Attractors are tree cavities that are settled by animals, while repulsers are cavities without settlement. Presented results are illustrated by computer simulations.