

Abstract

Spruce bark beetle (*Ips typographus* L.) is the most common and abundant beetle from the Scolytidae family in European forests. It is the most important biotic factor causing disturbances and affecting forest ecosystems. Thus, it recently became a subject of discussions, how to manage the forests properly in order to find an adequate equilibrium among economical, turistic and natural values of the forest. Many studies have shown a positive effect of bark beetle outbreaks on biodiversity and natural forest regeneration. It is hard to tell if these outbreaks are regular or not because there are many factors which can elicit them. However, just these factors can help us predict the probability of unforeseen population outbreak. One of these methods can be monitoring of surrounding areas because these areas tend to be synchronised. For this purpose, multiple mathematical models can be performed, such as the Mantel test, which determines the correlation between two matrices.

Keywords:

Spruce bark beetle, *Ips typographus*, population dynamics, spatial correlations, Mantel test