



The impact of disturbance and ensuing forestry practices on Collembola in spruce forest stands

Peter Čuchta

Biology Centre AS CR v.v.i., Institute of Soil Biology, Na Sádkách 7, 37005 České Budějovice, Czech Republic
(peter.cuchta@post.sk)

Soil Collembola communities were investigated in spruce forest stands of the High Tatra Mts that had been heavily damaged by a windstorm in November 2004 and subsequently by a wildfire in July 2005. The study focused on the impact of these disturbances and forestry practices on collembolan community distribution and structure four years after the disturbance. Four different treatments were selected for this study: intact forest stands (REF), non-extracted windthrown stands (NEX), clear-cut windthrown stands (EXT) and burnt windthrown stands (FIR). From a total of 7,820 individuals, 72 species were identified. The highest total abundance mean was recorded in FIR stands followed by NEX and EXT stands and, surprisingly, the lowest in REF stands. The highest total species richness was observed in REF stands, followed by NEX stands and FIR stands and the lowest in EXT stands. In REF and NEX stands the most abundant species were *Folsomia penicula* and *Tetracanthella fjellbergi*, while in heavily damaged stands the most abundant was *Anurophorus laricis*. The present study shows the negative impact of windthrow on Collembola communities as reflected in decreased species richness and abundance. However, disturbance by fire caused a considerable increase in collembolan abundance three years after the event. Moreover, we found out that clearing of windthrown spruce forests after a windstorm is less favourable for communities of soil collembolans and slows down the recovery process.