



Fire effects on soil fauna in Siberian Scots pine forests

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Fire is an important natural disturbance in Siberia burning 10-15 million hectares annually. It plays an important ecological role in the dynamics and structures of plant and animal communities that exists in forests found in this area. Soil biota is one of the first soil components to be impacted by fire exposure, which is reflected in altered postfire species composition and the proportion between various trophic groups, and in decreased zoocenotic densities. Experimental fires were conducted in Siberian Scots pine forests to study positive and negative effects of fires of varying intensity fires on the soil fauna. Immediately after fire, the densities of all groups of soil invertebrates were observed to decrease. As for negative fire effects on soil biota, our fires were found to modify microhabitats and destroy food resources. In most cases, the extent of the fire effects on soil mesofauna was observed not to have recovered even after 5 years after the fires (the limit of our current observations). The postburn population densities of soil microfauna (mites and collembola) reached prefire density levels after only 2 years when fires were low or moderate severity, but the ecologic-trophic structure had not still fully recovered at this time. It was found that even 5 years was an insufficient time to allow soil fauna to fully recover after exposure to high-intensity fires. Analysis of the microarthropod community after fire found the proportional changes of ecological groups of Oribatei and Collembola were independent of fire intensity levels.