



Geographical zone-specific of fires in Siberian Scots pine forests, Russia

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Several climatic and geographical zones crossing the area of Siberia account for highly diverse climatic and vegetation growing conditions and favor annual fire occurrence in different parts of this region. Ecological effects of fire in Scots pine stands of Siberia are determined by generally high fire hazard in these stands and their phytocenotic characteristics that vary widely among geographical zones. These characteristics are reflected in fire periodicity, spread patterns, and ecological effects. Mean fire intervals were found to be controlled by latitude and fire season duration, which also appeared to depend on latitude. In these forests, fire hazard determining fire occurrence, development, and ecological effects varies with fuel structure, loading, and flammability level. These fuel characteristics are the result of interaction of many forest zone-specific ecological factors. Fuel loading was found to decrease proceeding from the northern to the southern taiga forest subzone. High fuel loads enhance stable (steadily spreading) duff fires in the northern and central taiga subzones in summer. Unstable surface fires occur in spring in forest-steppe Scots pine stand, where they consume cured grass and a shallow duff layer. Forest fire protection planning, as well as the use of prescribed fire for forest management should consider characteristics of individual ecosystems, landscapes, and forest zones.