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The Siberian Times

Forest fires threaten wipeout for Siberian conifers as deciduous trees take over

By The Siberian Times reporter
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Global warming spells doom for boreal forests with potentially dramatic implications for carbon release in dark taiga.



'Fire acts as an important regulator in the natural development cycle of forests' - yet climate change is intensifying the frequency and strength of fires. Picture: Vera Salnitskaya

Climate change is behind a rise in forest fires which are having a direct impact on the tree balance in Siberia, according to a new international study (<http://onlinelibrary.wiley.com/doi/10.1111/qcb.13181/abstract>). This shows that conifers are failing to re-establish after these giant and destructive blazes.

Instead deciduous trees are growing in their place, says the author of the study Susanne Tautenhahn, at the Max Planck Institute of Biochemistry in Jena, who worked with a team that included scientists from Krasnoyarsk in Siberia. 'Boreal forests are one of the largest stores of carbon on Earth, and two-thirds of these forests are located in Siberia,' said Tautenhahn.



Forest affected by wildfires of 2012 near ZOTTO tower, Krasnoyarsk region. Pictures: Vera Salnitskaya

'Fire acts as an important regulator in the natural development cycle of forests' - yet climate change is intensifying the frequency and strength of fires, for instance due to lightning strikes, and the natural regeneration processes are being thrown out of balance'.

The investigation has homed in on burned areas along the Yenesei River in Siberia. They have worked out a model for the regeneration of the forest. Seeds of conifers are being outpaced by deciduous which carry much further by the wind.

The reduction of typical Siberian conifers, which hold high levels of moisture at ground level, increases the likelihood forest fires even further - part of a vicious circle.



Wildfires raging in Irkutsk and TransBaikal regions this summer. Pictures: Anna Baskakova, Vladimir Naidanov, Baikal ATV, Vkontakte

'This can become a self-reinforcing process that could effectively change the eco-system and pave the way for the dominance of deciduous trees on a long-term basis in Siberia,' she said.

'Even the latest rise in temperature is leading to an increased frequency of extreme weather events.' Storms, intense rainfall and thunderstorms will continue to rise.

However, 'we do not know whether the taiga will store more or less carbon with a changed stock of trees'.





In Siberia - 6,900 forest fires rampaged through 2.5 million hectares. Picture: Anton Klimov, Oksana Gromyko

According to the Federal Forestry Agency, in 2015 there were 11,800 forest fires in Russia covering 2.6 million hectares. In Siberia - 6,900 forest fires rampaged through 2.5 million hectares. More than 90% of the area spoiled by fire in Russia is in five Siberian regions, namely TransBaikal, Buryatia, Irkutsk region, Tuva and Krasnoyarsk.

The Siberian Times has previously highlighted the role of the Zotino Tall Tower Observation facility in measuring climate change in the taiga.