

Original article

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## Potential Wood Productivity of Forests of Moscow region in Conditions of Changing Climate

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**Abstract.** Changes in climatic conditions require updating of information on potential forest productivity. The aim of the study is to determine the potential productivity of Moscow Oblast forests as a result of climate change according to meteorological observations and forecast scenarios for 2071–2100. Long-term observation series obtained from meteorological stations of FGBU ‘Central UHMS’ and data on wood stock growth from the Forest Plan of the Moscow Region were used. The average annual air temperature in the region increased by an average of 2.2 °C and precipitation increased by 100 mm. The Paterson Climate Index (CVP) was used to predict potential forest productivity. An increase in potential forest productivity was found: in the northern part of the region by 21%, in the eastern part by 36%, in the southern part by 34%, and in the western part by 57%. Comparison of average values of potential forest productivity calculated on the basis of meteorological data and information from the state forest statistics allowed to determine the unrealised growth niche. Materials of the global climatic base Chelsa for the periods 1981–2010 and forecast estimates for 2071–2100 for three scenarios were analysed. It was found that by 2100 the potential productivity of forests in the Moscow region is expected to increase by 10% for the SSP1-RCP2.6 scenario, 26% for the SSP3-RCP7.0 scenario, and 32% for the SSP5-RCP8.5 scenario. It is necessary to transform the regime of forest management in the territory of the region in the conditions of climate warming and increase of potential forest productivity.

**Key words:** climate change, Moscow region, potential forest productivity, climate index

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