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# Adaptation of conifers in Central Siberia to changing environment

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Global change is expected to alter the environment in the boreal zone with far reaching consequences for tree growth and forest ecosystem functioning. Dendroecological and dendroclimatic techniques provide an opportunity for both to trace the impact of climate on tree growth in the past and predict the possible changes in wood productivity under changing climate.
Within this study we aimed at determining which limiting factors control tree growth and estimating which tree species (conifer deciduous or conifer evergreen) is more plastic under changing environment. A tree-ring width of mature Larix gmelinii (Rupr.) Rupr., Larix sibirica Ledeb. and Picea obovata Ledeb. from two regions in Central Siberia (Russia, 60°N, 89°E and 64°N, 100°E) were used to identify the strength of responses related to the curent climatic changes. Tree-ring width chronologies were analyzed and correlated with climatic parameters over the last 77 years. Since the growing season in the north of Eurasia is short (ca. four months) we took into account the effect of short-term weather influences. The moving correlations coefficients were calculated for 20-days window with 5-days step between tree-ring parameters and averages of daily climate parameters (Benkova et al. 2012; Fonti et al. 2013). To estimate long-term changes in tree-growth response, we used drought index (scPDSI, Palmer 1965, Wells et al. 2004), which was ranked from the lowest to the highest values for the period from 1936 to 2012. Correlations of tree-ring width series with climatic parameters were calculated for a 30-yr window moving along the rank.
Variability of tree-ring width under climatic conditions of particular years indicated that an increased late-spring temperature will initially lead to increase of tree growth. Due to the site and species specifity of tree growth climatic response, the expected climate change will lead to a wide range of changes in tree wood productivity and tree species composition in the boral forests.

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