



Radial tree growth in spruce forest stands of the Russian South-European taiga

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A radial growth of the trees was measured in 2003-2004 and 2007 by band dendrometers in boreal (SSF) and nemoral spruce forests (CSF) in the Central Forest Biosphere Reserve, CFBR (Tver region, Russia). The dendrometers were installed in 19 trees in SSF and in 10 trees in CSF stands. Increment bores were also taken from sample trees at both sites. For tree ring analysis 19 spruces, 10 aspens, 10 birches, 13 elms and 12 maples in CSF and 16 spruces in SSF were taken. The results of measurements were compared with similar measurements at Peno site which is situated about 50 km to north from CFBR. Weather conditions during measurement period were quite different. Growing season of 2003 characterised by relatively wet, whereas seasons 2004 and 2007 were significantly warmer and slightly drier.

A radial growth in 2003 of all sample trees in CSF started in the second part of May. In the SSF the date of growth start varied from tree to tree much more: since mid April to mid June. Most of trees at both plots finished to grow in mid September, although the growth of some sample trees continued until the end of period of measurements. In particular, the growth of birches in both stands started later and continued longer, than the growth of spruces. Negative growth corresponds to trees with prevailing stem shrinkage. The higher radial growth of aspens compared to spruces corresponds well with the results of tree ring analysis. The dependence of annual increment on tree DBH was positive for all species at both plots except the growth of birches in CSF stand (i.e. bigger birches had there smaller increment; this indicates, that old birches at this plot reached already the critical age and became to dye from e.g. fungi, etc.). Tree growth

during summer (June-August) of relatively dry season of 2004 was generally lower compared to the same period of 2003 for both stands, and was not the same in the different tree species. In particular, the growth of all birches and aspens in CSF in 2004 was significantly lower than in 2003, whereas the some spruces in 2004 grew quicker and some other grew slower than in 2003. The comparison the tree growth rates in CSF and Peno forest stand with similar species composition showed considerably higher growth of aspens in the CSF compared to Peno, whereas spruce growth rates were similar at both sites.