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BOOK OF ABSTRACTS

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SCOTS PINE AS A PROXY FOR METEOROLOGICAL VARIABLES: A CASE STUDY OF ČEPKELIAI RAISED BOG, SOUTH LITHUANIA

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Čepkeliai wetland complex is located in the South-Eastern part of Lithuania, in the border region to Belarus. The area of the wetland is 8903 ha, of which 82% is raised bog, 2% is transitional bog, 16% is fen. Čepkeliai wetland complex is the largest in Lithuania and one of the largest in the Baltic region. Scots pine (*Pinus sylvestris* L.) trees growing in the raised bog were dendrochronologically investigated in order to search links between the different tree-ring variables, i.e. the raw ring width chronology (Raw), a standardized chronology (STD), residual chronology (RES), chronologies distinguishing early wood (EW) and late wood (LW) and meteorological monthly variables. For this study cores from 96 Scots pines were collected during fieldworks in April, September and October 2014 using an increment corer. We used the DendroClim 2002 (Biondi and Waikul, 2004) software for determination of relationships between tree growth and meteorological parameters. We determined that the amount of precipitation during summer time has a negative impact on the formation of tree-rings, which usually occurs during the coming years, having influence over the next three years. The reason for that could be too high groundwater level or hydrological lag responses in the peatlands. High water table restricts growth of the tree roots to the upper aerobic peat layers and consequently leads to reduced root development limiting the plant's nutrient pool in already nutrient limited environment. Positive influence of P and P-PET (Precipitation - Potential evapotranspiration) on the annual tree-ring growth has been observed during April and May. During the same year P-PET had greater importance, whereas amount of precipitation (P) was more significant to the formation of the following year tree-rings. The formation of late wood (LW) appears to be more closely linked to the current season conditions than early wood (EW). This is understandable, because previous (autumn, winter and early spring) hydrological year climatic conditions have greater influence on the formation of EW comparing to LW.

Keywords: *dendrochronology, dendroclimatology, Scots pine, tree rings, early wood (EW) chronology, late wood (LW) chronology.*