GROWTH AND MORTALITY ANALYSES IN ALPINE FOREST ECOSYSTEMS BASED ON LONG-TERM MONITORING, GRADIENT STUDIES AND FIELD EXPERIMENTS

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ABSTRACT

In recent years an increasing number of studies have reported on forest declines, growth reductions and increasing mortality rates in response to changing climatic conditions. Climate change scenarios suggest an increase in temperature and extreme drought events for many regions worldwide, indicating increasing limitations of growth performance of many forest ecosystems. The response and vulnerability to extreme drought and varying water availability was analyzed based on 100 years of mortality data from long-term monitoring networks in Switzerland, including the National Forest Inventory, the long-term forest ecosystem research program (level II), forest reserves, growth and yield plots, studies along environmental gradients and in field experiments. An overview on the most important results will be given and consequences for future forest management discussed.