

Summary

Tree decline and subsequent mortality are nowadays one of the hot topics in forest ecology all over the world. Direct and indirect effects of increasing temperatures accompanied by changes in precipitation intensity and frequency (e.g. droughts) are considered to be the main factors that underlie these extended phenomena. In temperate-continental climate regions of Europe (e.g. Braşov county, Romania) the last decades have witnessed important declining and/or mortality events following sequences of consecutive drier and hotter than the average years. These declining and/or mortality events have affected mostly allochthonous planted conifer species (e.g. outside their natural range). Autochthonous broadleaf ones (e.g. native), on the other hand, do not seem to undergo decline and/or mortality during the same periods. Through this multidisciplinary and innovative postdoctoral research proposal, the project leader aims to study, using dendrochronological methods (e.g. tree-ring growth) and field inventories (e.g. successional processes), both historical growth patterns of allochthonous versus autochthonous tree species and patterns of forest secondary succession (e.g. regeneration), in forests affected by tree mortality in the county area of Braşov. The project NATivE seeks, therefore, to: (1) identify differences in historical growth patterns between allochthonous planted conifers and autochthonous broadleaves tree species; (2) deepen on the different strategies that allochthonous and autochthonous tree species use to cope with drought and on their resilience after facing drought events; and (3) study whether autochthonous broadleaf species regenerate better than the allochthonous conifer ones, which could result both at short- and long-term scales in significant changes in the vegetation composition and functioning of the forests ecosystems from the area of Braşov county.