

Ecophysiological and spatial aspects of drought effect on forest stands: Project description

Research of drought effects on forests has had a long tradition in Slovakia, and recent increases in the frequency and severity of drought periods further underscored such research's importance. In 2011, Slovak Research and Development Agency under the Ministry of Education, Science, Research and Sport of the Slovak Republic supported a project in which the main forest research institutions in Slovakia were engaged - National Forest Centre - Forest Research Institute Zvolen (project lead), Technical University in Zvolen, and Institute of Forest Ecology of the Slovak Academy of Sciences. The project "Ecophysiological and spatial aspects of drought effect on forest stands under climate change (acronym DRIM)" was prepared with intention to provide a platform for the continuation of the previous research activities, which mainly focused on the ecophysiology of forest trees under drought stress. Additionally to this topic, the project has addressed some novel areas such as the use of satellite imagery for drought assessment or research of fine roots dynamics under drought conditions. Main objectives of the project were:

- To establish field experiment containing artificial irrigation system and evaluate the response selected physiological indicators of beech trees to drought;
- To identify critical limits in selected meteorological factors inducing significant changes in tree physiological processes;
- To explore the usability of MODIS satellite imagery for the identification of heat and drought stress acting upon forests in Slovakia;
- To identify a response of tree fine root dynamics to altered soil water regime;
- To evaluate changes in trees susceptibility to biotic damage due to limited water availability.



Currently, the project is in its final stage and we are glad to see that project tasks were successfully completed and the consortium of three Slovak forestry institutions has proven its good performance and potential for further cooperation. Most importantly, numerous peer-reviewed papers in well recognized journals were published – to name a few of them, project team published in *Forest Ecology and Management*, *Forest Pathology*, *Annals of Forest Science* or *Central European Journal of Biology*. In addition, this issue of the *Lesnícky časopis - Forestry Journal* contains a collection of readings related to key research areas addressed in the project.

Finally, although the project brought some new answers, our experiments and data analyses raised numerous questions which deserve a continuation of this research. We thank all project partners for the three-year fruitful collaboration and wish to have enough enthusiasm and motivation to continue the commenced activities and work jointly towards new research projects.

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