

## **EDITORIAL TO THE MONOTHEMATIC ISSUE OF JLE: FORESTS AND CLIMATE CHANGE – HOW TO TAKE RESPONSIBILITY?**

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### **OUR INTERNATIONAL COMMITMENTS**

Forests cover more than a third of the countries of the European Union, providing many benefits in the field of environment, socio-economics and economics. New EU forest strategy suggests procedures for sustainable forest management. It suggests a necessary change in the approach to forests in particular with regard to the ongoing climate changes and the growing influence of drought or the spread of new pests and pathogens. This requires global responsibility in the approach to the management of supporting sustainable production and the consumption of forest products. This should serve the economical as well as the efficient use of the rural development funds to achieve the objectives in the field of nature conservation, biodiversity and adaptation to climate change in order to achieve a secure and sustainable biomass production as well as strengthen the quality of other ecosystem services. The Czech Republic is committed to fulfilling the strategic "Aichi" targets of the Convention on Biological Diversity, including the reduction of fragmentation, degradation and the conservation of forest biodiversity. This is one of the internationally recognized agreements to reduce dependence on fossil energy sources (COP21 Climate Conference in Paris) and the Czech Republic's reporting activities within the LULUCF (Land Use, Land Use Change and Forestry). Protection of soil and water through the river basin management plans in accordance with the Water Framework Directive and the rural development programs should be subject to effective control.

### **THE NEED TO CHANGE THE CURRENT PARADIGM OF FOREST MANAGEMENT**

From its very beginnings, organized forestry has focused primarily on the provision of required amount of firewood or timber in a rapidly evolving industry. Along with the development of methods of silviculture, harvesting or forest protection and causing a massive changes in tree species composition which has been characterized by the prevailing of non-native provenances of spruce and by the homogenous age structure of the forests. At the same time, clear-cut forestry long represented a technically and economically efficient way of management. Developments over the last decades, which have been characterized by a dramatic European-wide rise in forest damage as well as the growing demands of society on the multifunctional character of forests, have raised the need for changes in the current paradigm.

In the face of climate change and related changes in forest disturbance regimes, risk-oriented management became a key concept. Unstable monocultural forests need to be transformed into stable, uneven-aged and diverse forests, which are able to ensure the

provision of the required functions even in the event of failure of some tree species, whether as a result of the adverse impact of climatic factors or pests. These procedures can reduce the risk of sudden destruction of large forested areas and also promote the desired asynchronous dynamics and ecological stability of forests as well as forest landscape. It is inevitable to focus on the small-scale methods of forest management which emulate the natural dynamics of the forest, including the water and nutrient cycles. The need for biomass production, which is one of the most important renewables, is understandable; but it cannot be realized by repeated large-scale monocultures that are contrary to the very principles of sustainability which we have learnt from past experiences. It is needed more than ever before to not degrade valuable habitats by such practices as the afforestation of valuable non-forest land and have the utmost respect for natural conditions. In regards to the needs of a multifunctional management, especially one that supports biodiversity, water retention in the landscape, the accumulation of carbon, etc., it is necessary to create a framework for the implementation on a wider spectrum of management alternatives supporting these functions. It must take into account the social significance of these functions associated with their support for the creation of effective subsidy policy.

## **RESPONSIBLE FOREST MANAGEMENT CHANGE GOES HAND IN HAND WITH CLIMATE CHANGE**

Ongoing climate change brings natural conditions, which present tree species and age composition of forests might not be able to resist. The consequences will lead to serious ecological and environmental damage as well as a decrease in economic efficiency of forestry.

Despite the fact that timber production remains the primary management objective for most of the forested area, it is essential to find harmony between the functions of production as well as other ecosystem functions (especially carbon sequestration in vegetation and soil, water retention in the landscape, maintaining biodiversity and social functions) and adaptation to climate change. This consistency must be achieved in an economically efficient way and in terms of climate change, which is a task that requires both the intensive involvement of the scientific community as well as the intensive inter-sectoral cooperation. This requires the creation of an effective system of subsidies to support the adaptation of forests and the creation of legislation that at least partially supports the payments for ecosystem services, which is one of the obligations of the Czech Republic. The need for wider involvement of the scientific community was also one of the key messages of the conference on Integration of Biodiversity Enhancement in Sustainable Forest Management in the Framework of the EU Forest Strategy organized by the Ministry of Agriculture in 2016.

On 18 October 2016, and again on 10 November 2017, and on 9 January 2019, the Committee for the Environment of the Czech Academy of Sciences and the Platform for the Landscape co-organized a seminar on the sustainable management and the protection of forests in the context of climate change. The aim was to consider the issue from the perspective of international commitments of the Czechia, the history of forestry and nature protection in Central Europe. In fact, those meetings were the first where the effects of climate change on Czech forests were addressed at the landscape level. This issue of the Journal of Landscape Ecology contains the main outcomes of these seminars and to the discussion about the consequences of global climate change and further necessary steps to improve Czech forestry.