

## Preface

This special issue of the Journal of Forest Science is a result of the international conference *Species Diversity, Population Structure and Impact of Animals and Fungi on Forest Functions in Anthropogenically Affected Spruce Forests* held in Frýdek-Místek, Czech Republic, October 2–4, 2007.

The main aim was to present results achieved in the framework of Research Project No. MZe 0002070201 of the Ministry of Agriculture of the Czech Republic *Stabilization of Forest Functions in Biotopes Disturbed by Human Activities under Changing Environmental Conditions*.

This project consists of six mutually connected partial intentions and each of them is further divided into 3–6 thematic domains. Partial intention 02 *Species Diversity, Population Structure and Animal and Fungi Influence on Forest Functions in Anthropogenically Affected Biotopes* is focused on forest biodiversity with an emphasis on mountain spruce forests. The study includes species compositions of some insect and fungi groups, bionomics of the particular species and interaction between pests and environmental conditions.

The plenary session of this conference was divided into several sections: (i) Bark beetles, (ii) Sawflies, (iii) Other insects, (iv) Phytopathological fungi. Thirty-one participants from three countries – Forestry and Game Management Research Institute in Jíloviště-Strnady (Czech Republic), National Forest Centre – Forest Research Institute in Zvolen (Slovakia), Forestry Research Institute in Cracow (Poland), Mendel University of Agriculture and Forestry in Brno (Czech Republic), Czech University of Life Sciences in Prague (Czech Republic), Institute of Forest Management in Brandýs nad Labem (Czech Republic) – attended the conference and 14 contributions were presented. All of them were presented orally and we introduce the most important ones as scientific articles in this book.

This conference also resulted in a future collaboration agreement on some selected survey tasks: spruce bark beetles, larch bark beetle, mycorrhizae problems and oak decline. These problems are widespread throughout all three countries, hence their solving seems very important for foresters in Central Europe. Close collaboration among all three forest research institutes has existed for many years, whereas cooperation with universities and with the Institute of Forest Management started only a couple of years ago and has rather an informal character.

Our excursion to the foot of the Moravskoslezské Beskydy Mts. was an opportunity to visit forest spruce plantations inoculated by mycorrhizal fungi at the edge of the area of spruce decline. Furthermore, participants could see these problems in the centre of the declining spruce area, namely in the forest district Město Albrechtice, where local foresters are solving them intensively and actively by using the knowledge of different forest management ways based mainly on natural processes. In accordance with Manion's theory, the decline of spruce forest is probably a result of several preconditions (spruce is allochthonous in the area of interest, soil acidity, nutrient deficiency, water deficit, mechanical damage caused by logging machines, chronic insect – tenthredinid infestation during the last 50 years, pathogen damage by the honey fungus) and immediate damage factors. The fitness of forest stands, decreased by drought, is further stressed with insufficient water supply as a consequence of torn roots during soil drying. Fungal infection is inevitable afterwards. Moreover, massive attacks of honey fungus are often followed by bark beetle colonization in these forest stands. *Pityogenes chalcographus* and *Pityophthorus pityographus* are the most abundant in young forest stands while species of the genus *Ips* (*Ips duplicatus*, *Ips typographus*, *Ips amitinus*) together with *Pityogenes chalcographus* are predominant in mature forests. Our second excursion to the Litovelské Pomoraví Protected Landscape Area led us into oak forests wrestling with analogical problems.

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