

Conservation and reproduction of genetic resources of resistant variants of Norway spruce in Ore Mountains to mitigate effects of drought and ongoing environmental changes and to support stability of mountain forest ecosystems

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Abstract: The relative resistance of some Norway spruce individuals, which for a long time survived during several periods of imission load in the recent past in the Czech Republic in Ore Mountains, this is basis for another practical utilization of this phenomenon in the forestry practice.

Previous research activities in mentioned area were aimed to preservation and reproduction of resistant variants of the local Norway spruce ecotype, incl. use of DNA analyses. Implementation of indicated rescue programs requires, among others, the use of proven vegetative propagation technology of surviving spruce individuals, resp. of their ex situ conserved clonal variants, for their repatriation back to original area of their occurrence.

Those sub-populations of resistant spruce have proven their adaptability and vitality in the past period of air pollution, so it is possible to also suppose their vitality and resistance to adverse effects of current deteriorated environment on mountain forests ecosystems.



Methodology: Basic material (clones of Norway spruce resistant forms are concentrated in the already aging clone *ex-situ* collections, which were established by the Department of Biology and Breeding of Forest Tree Species (Forestry and Game Management Research Institute /FGMRI/ Jíloviště – Strnady) over three periods (1970, 1972 and 1991) in the area of the former FGMRI Administration of Experimental Forest Objects, currently administrated by Forests Jíloviště Ltd.



The aim of project is to follow up on previous research activities in the Ore Mountains aimed to preservation and reproduction of resistant variants of the Ore Mountains' Norway spruce ecotype, incl. use of DNA analyses. Evaluation of the plantings with vegetative variants of resistant N. spruce, earlier established during the project NAZV QJ1520300 (2015–2018) on the localities *in situ* managed by Municipal Forests of Chomutov, Jirkov, Jáchymov, Klášterec and *ex situ* localities under administration of another participant of current project TAČR SS01020076 (PEXÍDR, s. r. o.), during project NAZV QJ1520300 (2015–2018), together with rejuvenization and reconstruction of N. spruce clonal archive in Klášterec, will be realized, too.

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