

## Research on broadleaved tree species in Poland

### ESTIMATION OF THE INFLUENCE OF SELECTED FOREST TREE SPECIES ON SOIL PROPERTIES, 30 YEARS AFTER THEIR PLANTING

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The impact of economically important tree species on soil properties was investigated and compared after 30 years since their planting on the same site in fresh mixed coniferous forest site type. The study covered the impact of investigated tree species on humus, pH, sorption capacity, contents of carbon and nitrogen as well as total porosity, capillary water capacity and water permeability of soil.

Significant impact of investigated tree species on soil properties was stated. The strongest impact was revealed in relation to physical-chemical properties, among which pH, hydrolytic acidity and saturation grade of soil complex by exchangeable cations of basic character deserve to be stressed. Differentiation of the physical soil properties under the canopy of tree species in study was relatively low.

### THE POSSIBILITIES TO NEUTRALIZE THE PHENOMENON OF EUROPEAN ASH DIEBACK BY SILVICULTURE METHODS

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1. Ash dieback was detected in 86% of Forest District Administrations where stands with ash occur. An overall area of dying ash stands amounts to about 10,800 hectares.
2. In the majority of Forest District Administrations the disease began between 1998 and 2001. The peak of ash dieback was between 1999 and 2003.
3. The most vulnerable to the disease were man-made young stands under 20 years of age accounting for 37% of the overall area of all declining ash stands (about 4,000 ha).
4. The highest percentage of dying maturing and old-growth stands with dominating ash occurs in central and eastern part of Poland, while the lowest – in southern Poland.

### THE INTRASPECIES VARIABILITY OF BIRCH (*Betula pendula*) AND ITS INCREMENT ABILITY AND SILVICULTURE PROPERTIES

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The aim of the study was to know the variability of increment, quality and morphological features of Polish provenances of birch (*Betula pendula*). Great variability among different provenances of birch was found. Provenances from north-east Poland were of the best quality. The negative impact of distance between stand where the seeds were collected and place where the study was established was not found. The high variability of the size and shape of birch leaves was found.

### CHANGES OF SOME SOIL PROPERTIES UNDER THE INFLUENCE OF SELECTED TREE SPECIES ON THE MIXED BROADLEAVED FOREST SITE TYPE

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The aim of the study was to find the differences of chemical and physical soil properties under ten different tree species. Following tree species were planted: sycamore, maple, lime and others. It was found that the humus layers were completely different under 10 tree species. Soil properties have changed after 30 years since planting. The highest changes were found in the organic layer.