

The Genetic Diversity and Conservation Status of Natural *Populus nigra* Populations in Turkey

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Abstract : *Populus nigra* is one of the most economically and ecologically important forest trees in Turkey, well known for its rapid growth, good ability to vegetative propagation and the extreme uses of its wood. Due to overexploitation, loss of natural distribution area and extreme hybridization and introgression, *Populus nigra* is one of the most threatened tree species in Turkey and Europe. Using 20 nuclear microsatellite loci, the genetic structure of European black poplar populations along the two largest rivers of Turkey was analyzed. All tested loci were highly polymorphic, displaying 5 to 15 alleles per locus. Observed heterozygosity (overall $H_o = 0.79$) has been higher than the expected (overall $H_e = 0.58$) in each population. Low level of genetic differentiation among populations ($F_{ST} = 0.03$) and excess of heterozygotes for each river were found. Human-mediated dispersal, phenotypic selection, high level of gene flow and extensive circulations of clonal materials may cause those situations. The genetic data obtained from this study could provide the basis for efficient in situ and ex-situ conservation and restoration of species natural populations in its natural habitat as well as having sustainable breeding and poplar plantations in the future.

Keywords : populus, clonal, loci, ex situ

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