



Abstract

Forest Genetic Monitoring in a Biodiversity Hotspot [†]

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Abstract: The genetic monitoring of forest trees is of the utmost importance for securing the maintenance of species' adaptive potential. Genetic monitoring, the quantification of temporal changes in a population's genetic variation and structure, introduces prognosis and assists in defining tools for the management of genetic resources. Forest genetic monitoring (FGM) is imperative in biodiversity hotspots such as Greece, one of the most species-rich European countries, where >7000 native plant taxa (~20% endemics) exist and 28% of its land base is included in the Natura 2000 Special Areas of Conservation network. Moreover, (meta-)analyses of genetic data have shown that Greek forests' tree populations present significantly higher values of polymorphism and differentiation compared to the average values reported in the international literature. FGM studies in Greece involve the following species: *Abies borissi regis*, *Castanea sativa*, *Fagus sylvatica*, *Quercus petraea*, *Q. robur*, *Pinus nigra*, and *Prunus avium*. FGM uses a genealogical approach and employs 11–26 Simple Sequence Repeat (SSR) loci in different cohorts (mature and juvenile trees), while the average time interval between assessments is 12.9 years. The results so far for *A. borissi regis* and *F. sylvatica* indicate a maintenance of genetic diversity over time, but with a slight drop of N_e in the juvenile cohort of hybrid firs compared to the mature trees.

Keywords: conservation genetics; genetic monitoring; forest trees; Greece



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