

CLOSE-TO-NATURE FOREST SUSTAINABLE MANAGEMENT PRACTICES UNDER CLIMATE CHANGES (LIFE SySTEMiC)

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EU forests cover a wide range of climatic zones and forest types, ranging from the spruce-pine forests of boreal Scandinavia to the mixed oak and pine forests of Mediterranean Europe (European Environment Agency (EEA) 2006). Forest areas are important for ecosystem services, as forests are multifunctional, serving economic, social and environmental purposes. According to the EEA (2010) assessment the variety of threats is increasing. Climate change, air pollution, unsustainable forest management, invasive species, urbanization and forest fragmentation reduce forest biodiversity, may adversely affect genetic diversity and put at threat the future adaptive potential and sustainability of EU forests and their ecosystems. In fact, over 60 % of forest habitat types identified by the Habitats Directive are reported to be in unfavorable conservation status. As EEA points out “genetic variety in regionally adapted forests is essential for adapting to new environmental conditions such as climate change”. According to The State of the World’s Forest, Genetic Resources roughly half of the forest species were found to be threatened or subject to genetic erosion, making forests less resilient and compromising future adaptability to changing environmental conditions. Therefore, it is extremely important to provide a sustainable forest management (SFM) approach to local and rural community for a correct sustainable use of forest products, useful for social-economy, but preserving forest ecosystem biodiversity. In particular, forest genetic resources (FGR) are the basis of the long-term evolutionary processes maintaining the adaptive potential of forests. Their conservation can be defined as “policies and management actions taken to ensure their continued availability and existence” (FAO/DFSC/IPGRI, 2001). LIFE SySTEMiC (LIFE18 ENV/IT/000124) examines best close-to-nature forest managements regarding forest genetic resources (FGR) in different European Forest Types, for diverse forest management

systems comparing to non-managed forests to preserve adaptability of forest ecosystems. The LIFE SySTEMiC's objective is to support stability and connectivity of forests in changing climates, and their adaptability to future environments. Therefore, LIFE SySTEMiC's principal aim is to use a combination of advanced landscape genomics, applied genetics, modelling and silvicultural methods resulting in an innovative Genetic Biodiversity and Silvicultural model (GenBioSilvi) to be used as tool for a SFM according to the Pan-European C&I. LIFE SySTEMiC multidisciplinary approach shall: i) use novel or adapted silvicultural methods to demonstrate SFM considering conservation of FGR/biodiversity; ii) evaluate natural regeneration ability in close-to-nature forest under different silvicultural treatments and in relation to climate change; iii) support a common discussion interface among stakeholders, including forestry, game management and conservation authorities to transfer the tools developed.