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# Climate variability in forest management: The AForClimate project

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Previous research has hypothesised that climate variability may play a relevant role in forest planning and management under climate change (D'Aprile et al., 2015). In forest planning and management, yield tables, site quality indices, age class, rate of growth, and spatial distribution are some of the most used tools and parameters. However, these methods do not involve the influence of climate variability over time although climate is the main driver in trends of forest and tree growth. Changing climate conditions may impact on temperature and/or precipitation thresholds critical to forest tree growth. Forest biomass, resilience, and $CO_2$ storage may be damaged unless forest planning and management implement the relationships between climate variability and trends of tree growth.
The project AForClimate (Adaption of FORest management to CLIMATE variability: an ecological approach - LIFE15 CCA/IT/000089) (D'Aprile et al., 2017)
(http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=5668; https://www.aforclimate.eu/) aims to adapt effective forest management to climate change by defining a method to estimate the likely impacts of climatic factors on forest growth so as to manage forests in ways that maintain resilience, takes into account forest regeneration and distribute the wood mass harvested over periods with climate conditions favourable to growth.
AForClimate is applied on beech forests (Fagus sylvatica L.) as it is an economically and ecologically important tree species. There are some 15 million ha of beech forests in Europe, primarily in mountainous areas of central and southern Europe (the species is found from sea level up to 1.800 m). The beech forests with the highest biodiversity in the EU are located in the Apennines mountain range in central Italy, including examples of two habitats listed as priority for conservation in the annexes of the EU Habitats Directive - 9210 - Apennine beech forests with Taxus and Ilex; and 9220 - Apennine beech forests with Abies alba and beech forests with Abies nebrodensis.

The project expects to achieve the following results:
• To make forest management in the project areas actions consistent with adaptation to climate change;
• To create a detailed forecast model for forestry management that takes climate change variability into account;
• To develop a monitoring scheme to assess, by the end of the project, the impacts of the approach to forest management in terms of regeneration capacity, production capacity, and biodiversity. This scheme will take into consideration the entire ecosystem of beech forest and all components essential for appropriate forest management.

D'Aprile F., Tapper N., Marchetti M., 2015 - Forestry under Climate Change. Is Time a Tool for Sustainable Forest Management? Open Journal of Forestry, 5, 329-336. DOI: 10.4236/ojf.2015.54028

D'Aprile, F., Chiavetta, U. and Miozzo, M., 2017. Il Progetto AForClimate. Variabilità climatica come strumento di pianificazione della gestione forestale. Sherwood, n.224, pp.19-22. Compagnia delle Foreste (Arezzo, Italy).