Project Database of ICP Forests
PROJECT DESCRIPTION

PROJECT INFORMATION

Project title: FUTPA: Plant functional trait patterns in key EU forest types

Project ID: 61

Contact person: Roberto Canullo (roberto.canullo@unicam.it)

PROJECT DESCRIPTION

An important objective in forest ecology is to understand how functional traits determine species sorting across environmental gradients. Yet, little is known about the trait-environment relationships of mixed forests at larger geographic scales.
Several key traits, summarized in the leaf–height–seed strategy scheme, have been proposed to be universally important for plant performance and to represent important strategy axes (Westoby 1998; Westoby et al. 2002). Maximum height determines the position of adult plants in the vertical profile of the vegetation, and hence their access to light (Hirose & Werger 1987). Specific leaf area (SLA) indicates the leaf efficiency for light capture per unit biomass invested (Poorter et al. 2009). Seed mass is an important indicator of the life-history strategy of species, with fast-growing pioneer species tending to have small seeds (Moles et al. 2004).
In addition, as pointed out by Chave et al. (2009) and Hérault et al (2011, references therein) wood density is emerging as a core plant functional trait for woody species, because it is related to stem construction costs, plant architecture and stability and stem hydraulic conductance and hence photosynthetic carbon gain. Recent evidence shows wood density and other stem traits to vary independently of the leaf economics spectrum), suggesting the existence of at least four trait-defined axes of plant strategies: “leaf–height–seed–stem” (Baraloto et al. 2010; Hérault et al 2011).
We therefore will use traits related to leaf economics, stem economics and life history. Regarding the latter, we will thoroughly evaluate clonal growth capacity as well as dispersal-related traits. For the tree species, we will evaluate the past climatic conditions during the evolution of the species. At the side of the environmental parameters we will use available data on soil, topography and present day climate.
The ICP Forest LI datasets are ideal to test mixed forest types across the European range: European Forest Type 4 (Acidophylous oak and oak-birch forest), 5 (Mesophytic deciduous forest), 8 (Thermophilous deciduous forest), 9 (Broadleaved evergreen forest).