Project Database of ICP Forests
PROJECT DESCRIPTION

PROJECT INFORMATION

Project title: Reproductive productivity and masting behaviour in multiple tree species from the European forests

Project ID: 16

Contact person: Marcos Fernandez Martinez (m.fernandez@creaf.uab.cat)

PROJECT DESCRIPTION

Objectives of the project:

Our main objective is to study which factors influence the effort on flowering and seed production of different tree species with the ICP Forest database.

Scientific background of the project:

Seed production is a phenomenon of capital importance for closing the biological cycle of plants but some species are known to present an extreme interannual variability in it, supposing, a priori, a drawback for its persistence in a community. An extremely irregular annual seed production and the synchronization of these reproductive events of the individuals within a population is a phenomenon usually called *masting* (Kelly and Sork, 2002). Thus, we want to make use of the ICP Forest database taking advantage of the different species monitorized to test some hypotheses and questions concerning on masting behaviour.

These are as it follows:

i. Larger investments on flowering are related to larger seed crops or the available resources of the plant are the main drivers of seed production? (pollination efficiency hypothesis [Smith et al., 1990] vs resource-based hypotheses [Sork et al., 1993]).
ii. Is there a trade-off between vegetative growth and seed production (Sánchez-Humanes et al., 2011)?
iii. Is there any influence of the date of the flowering onset on seed crops?
iv. Are synchronization of reproductive events (at a population, regional or inter-species level) driven by environmental cues (e.g. following teleconnections patterns [Ranta et al., 1997])?
v. Is masting behaviour more evident in poorer habitats (with some kind of growth constraints [Kelly and Sork, 2002])?

We plan to use additional data from other data sets (e.g. climate maps, teleconnection indices or remote sensing data) that will help to answer our questions and will allow a use of ICP Forests data with synergic benefits. Otherwise, a suite of different univariate and multivariate ordination and regression statistical analyses, including structural equation modelling and others, will be used to disentangle the main questions posed in the project.