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## COST Action FP1106

### STReESS - Studying Tree Responses to extreme Events: a Synthesis

#### FINAL ASSESSMENT REPORT 23 April 2012 – 22 April 2016

**This report assessing the full lifetime of the Action is submitted by the Rapporteur.**

**Confidentiality:** This report, other than the Summary Assessment, is confidential to the Management Committee and the COST Association (including the Committee of Senior Officials, Scientific Committee and Administration). The Summary Assessment is non-confidential.

#### **Summary assessment of outcomes and impacts (for publication):**

This COST Action FP1106, concerning the very complex question of the trees's capacity to respond to external stress factors, is particularly important for the future management of forests submitted to climate change. This requires a multidisciplinary approach rendered possible, in a particularly convincingly way, by the establishment of this network of this Action. This multidisciplinary approach, from cell to landscape, and with sophisticated tools, was not possible without this networking.

Scientific impacts of this COST Action FP1106 is high. The tree-centered approach, a new concept advocated by this COST action, allowing an improved mechanistic understanding of response of trees to extreme events and climate change contributes in innovative and relevant way to the debate concerning the resilience of forests and also their management. This tree-centered approach allows to evaluate plasticity of tree individuals and tree species and to better understand the resilience of forests. At the most fundamental level this approach allows major advances in the understanding of the relationships tree structure-function. This tree-centered approach has been conducted thanks to the collaboration between scientists from different disciplines. There is now potential to build process-based tree models. Numerous methodological developments have also be made thanks to this Action.

5 databases, delivered in different Topic Groups, testify of the strong scientific network allowing common output.

The strategy adopted for the publications of the result of this COST Action is based on the development of a special research topic "Studying tree responses to extreme events" in the online *Journal of Plant Science Frontiers*. This journal is a very good journal in the scope of plant sciences, with impact factor of 3.94 and a ranking of 19th out of 200 journals in this field. Among the 39 articles published on this topic, 27 or 28 are directly linked to the COST FP1106 and 11 were funded through other channels. More than 200 researchers have co-signed the papers and these articles have benefit 40813 views.

This is a very good publication strategy because it allows associating concretely many authors and many countries on the same theme, while promoting interdisciplinarity. Thus one finds in this volume both papers of anatomy, dendroecology, ecophysiology, modeling, etc.

There are also other papers in others journals with high Impact Factor that reflect the scientific quality of the work stemming from the COST Action.

Concerning societal and economic impact, this Action provides practical support for local management.

In addition to scientific publications mentioned above, one can notice, particularly after the final meeting, an important list of articles and reports in press, radio and television, mainly for Germany, Austria and Switzerland.



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