



forests



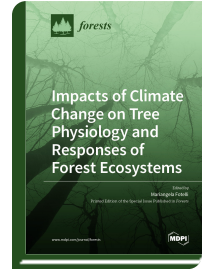
Special Issue Reprint

Impacts of Climate Change on Tree Physiology and Responses of Forest Ecosystems

www.mdpi.com/books/reprint/4775

Edited by
Mariangela Fotelli

ISBN 978-3-0365-2750-5 (Hardback)
ISBN 978-3-0365-2751-2 (PDF)



Extreme climatic events, such as intense and prolonged droughts and heat waves, are occurring with increasing frequency and with pronounced impacts on forests. Forest trees, as long-lived organisms, need to develop adaptation mechanisms to successfully respond to such climatic extremes. Whether physiological adaptations on the tree level result in ecophysiological responses that ensure plasticity of forest ecosystems to climate change is currently in the core forest research. Within this Special Issue, forest species' responses to climatic variability were reported from diverse climatic zones and ecosystem types: from near-desert mountains in western USA to tropical forests in central America and Asia, and from Mediterranean ecosystems to temperate European forests. The clear effects of constraints related to climate change were evidenced on the tree level, such as in differentiated gene expression, metabolite abundance, sap flow rates, photosynthetic performance, seed germination, survival and growth, while on the ecosystem level, tree line shifts, temporal shifts in allocation of resources and species shifts were identified. Experimental schemes such as common gardens and provenance trails also provided long-term indications on the tolerance of forest species against drought and warming and serve to evaluate their performance under the predicted climate in near future. These findings enhance our knowledge on the potential resilience of forest species and ecosystems to climate change and provide an updated basis for continuing research on this topic.



Order Your Print Copy
You can order print copies at
www.mdpi.com/books/reprint/4775

MDPI Books offers quality open access book publishing to promote the exchange of ideas and knowledge in a globalized world. MDPI Books encompasses all the benefits of open access – high availability and visibility, as well as wide and rapid dissemination. With MDPI Books, you can complement the digital version of your work with a high quality printed counterpart.



Open Access

Your scholarly work is accessible worldwide without any restrictions. All authors retain the copyright for their work distributed under the terms of the Creative Commons Attribution License.



Author Focus

Authors and editors profit from MDPI's over two decades of experience in open access publishing, our customized personal support throughout the entire publication process, and competitive processing charges as well as unique contributor discounts on book purchases.



High Quality & Rapid Publication

MDPI ensures a thorough review for all published items and provides a fast publication procedure. State-of-the-art research and time-sensitive topics are released with a minimum amount of delay.



High Visibility

Due to our global network and well-known channel partners, we ensure maximum visibility and broad dissemination. Title information of books is sent to international indexing databases and archives, such as the Directory of Open Access Books (DOAB), and the Verzeichnis Lieferbarer Bücher (VLB).



Print on Demand and Multiple Formats

MDPI Books are available for purchase and to read online at any time. Our print-on-demand service offers a sustainable, cost-effective and fast way to publish MDPI Books printed versions.