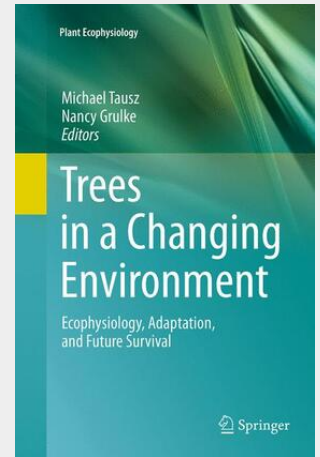


## Trees in a Changing Environment

Ecophysiology, Adaptation, and Future Survival

This book delivers current state-of-the-science knowledge of tree ecophysiology, with particular emphasis on adaptation to a novel future physical and chemical environment. Unlike the focus of most books on the topic, this considers air chemistry changes (O<sub>3</sub>, NO<sub>x</sub>, and N deposition) in addition to elevated CO<sub>2</sub> effects and its secondary effects of elevated temperature. The authors have addressed two systems essential for plant life: water handling capacity from the perspective of water transport; the coupling of xylem and phloem water potential and flow, water and nutrition uptake via likely changes in mycorrhizal relationships; control of water loss via stomata and its retention via cellular regulation; and within plant carbon dynamics from the perspective of environmental limitations to growth, allocation to defences, and changes in partitioning to respiration. The authors offer expert knowledge and insight to develop likely outcomes within the context of many unknowns. We offer this comprehensive analysis of tree responses and their capacity to respond to environmental changes to provide a better insight in understanding likelihood for survival, as well as planning for the future with long-lived, stationary organisms adapted to the past: trees.

This concise book fills a gap in the field of tree ecophysiology, delivering a state-of-the-art compendium of current knowledge in physiological ecology of trees with particular emphasis on the significance for adaptation to a future environment. Including contributions on tree and forest health in a changing climate, the contribution of trees to the global carbon cycle and the options for forests and trees to mitigate environmental change, the volume will be a valuable resource for all researchers interested in these issues. Written by international authorities in the field, each chapter provides a concise introduction to the topic discussed with reference to 'classical' key studies. This is then expanded to consider the likely effects of multiple factors leading up to an outlook on scenarios as to how the physiological mechanisms in question are likely to determine success and failure of trees in a future world.



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