



## Xylem Water Distribution in Woody Plants Visualized

Guest Editor:

**Dr. Peter Kitin**

School of Environmental and  
Forest Sciences, University of  
Washington, Seattle, WA, USA

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### Message from the Guest Editor

Water transport is a critical xylem function that affects photosynthesis, growth, plant vitality, and ultimately plant survival. Studying the relationships between water transport and xylem structure is fundamental for understanding species ecology, and provides important knowledge for silvicultural, tree improvement, and forest restoration practices.

A major limitation to the research on the hydraulic function of xylem cells is the technical difficulty to visualize the free water as it occurs in real-time in the intact plant. Revolutionary new techniques for studying xylem water in real-time are now available, including cryo-microscopy, synchrotron, and X-ray microtomography. This Special Issue plans to give an overview of the most recent advances in the studies of free water movement in secondary xylem.

Potential topics include, but are not limited to:

Application of cryo-light microscopy and cryo-SEM in studies of the water content of xylem cells.

Three-dimensional microscopy of the water flow pathways of xylem.

X-ray microtomography of water content and water movement in the living plant.

Xylem flow tracers.





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Forests Editorial Office  
MDPI, Grosspeteranlage 5  
4052 Basel, Switzerland

Tel: +41 61 683 77 34  
www.mdpi.com

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