



## **Can plant functional diversity buffer forest ecosystem responses to drought?**

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Drought impacts carbon, water, and energy cycles in forests and may pose a fundamental threat to forests in future climates. Plant hydraulic transport of water is central to tree drought responses and function, including curtailing of water loss and the risk of mortality during drought. The effect of biodiversity on ecosystem function has typically been examined in grasslands, yet the diversity of plant hydraulic strategies may influence forests' response to drought. We test how forest functional and hydraulic diversity within and across ecosystems affects large-scale drought responses. We find that current plant functional types are not well-suited to capture hydraulic variation and that higher hydraulic diversity buffers ecosystem variation during drought. Our results demonstrate that tree functional diversity, particularly hydraulic diversity, may be improve forest drought resilience and is likely critical to simulate in plant functional types in model projections of future vegetation's response to climate extremes.