Elevated CO_2 enhances leaf senescence during extreme drought in a temperate forest

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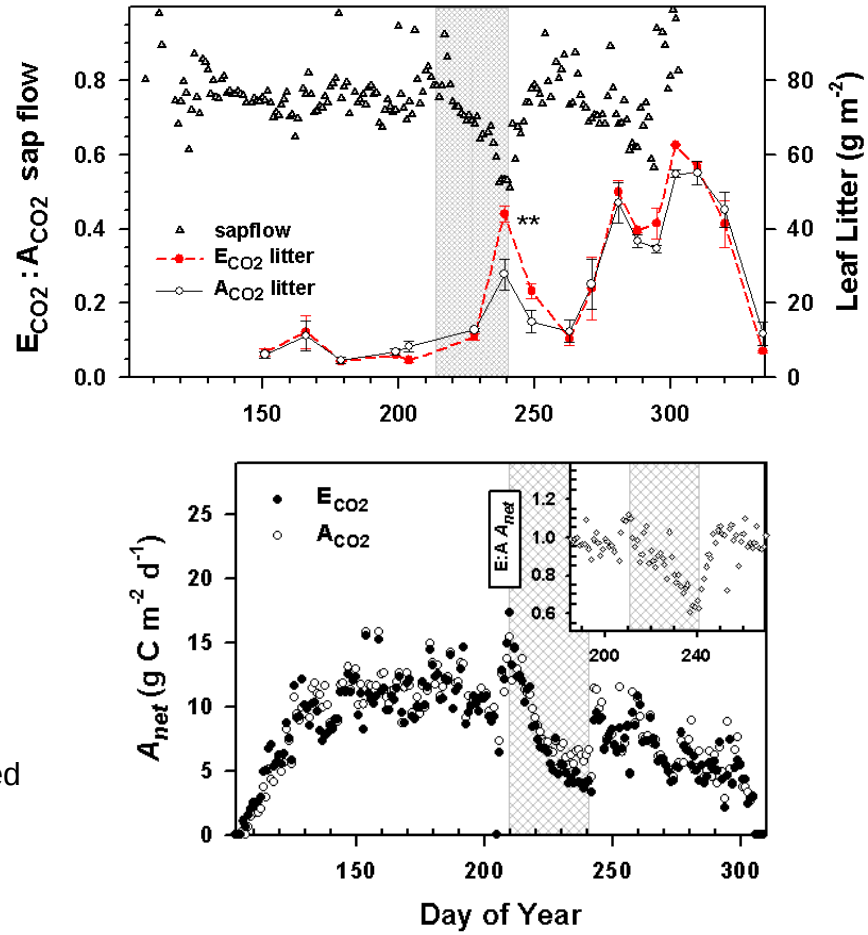
Funding: DOE Office of Science, Biological and Environmental Research

- **Vegetation functions were evaluated under elevated CO_2 atmospheres both with and without drought and heat extremes.**
- **Elevated CO_2 substantially reduced stand-level water use by sweetgum trees (*Liquidambar styraciflua*) trees during an acute drought and heat event. The drought event coincided with significant premature leaf abscission.**
- **Elevated CO_2 reduced the capacity of leaves to exchange gases with the atmosphere (i.e., stomatal conductance - g_s) and reduced photosynthetic carbon gain (A_{net}).**
- **Foliar stress under elevated CO_2 resulted in enhanced premature leaf senescence and abscission reducing the overall productive capacity of the forest.**



Citation: Warren JM, Norby RJ, Wullschleger SD (2011) Elevated CO2 enhances leaf senescence during extreme drought in a temperate forest. *Tree Physiology* 31:117-130; DOI: 10.1093/treephys/tpr002

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