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## Functional xylem anatomy: intra and interspecific variation in stems of herbaceous and woody species

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## Propositions

- 1) The use of mortality thresholds in plant hydraulics can substantially improve vegetation modeling under future climate regimes.
- 2) Soil characteristics, especially the high concentration of aluminum, may induce wood xeromorphic features in cerrado trees. (*this thesis*)
- 3) There is considerable evidence that angiosperms are supremely plastic in evolving growth forms suited to specific situations, and that invasion of regions suited to greater woodiness may be expected to result in evolution of that woodiness (*adapted from S. Carlquist 1975, Island biology*)
- 4) The thickness of intervessel pit membrane is the direct link that explains the indirect relationship between higher embolism resistance and more lignified stems in a given plant lineage. (*this thesis*)
- 5) Seasonally dry tropical forests are essentially tree-dominated ecosystems, growing on fertile soils, and can be distinguished from open savannas which have a xeromorphic fire-tolerant, grass layer and grow on dystrophic, acid soils. (*adapted from Pennington et al. 2000*)
- 6) Axial variation in wood traits along the main stem is mainly adapted to deal with increasing hydraulic resistance with increasing tree height. (*this thesis*)
- 7) The thickness of intervessel pit membranes is one of the strongest wood anatomical features explaining drought-induced embolism resistance in woody angiosperms.
- 8) Differences in mean annual precipitation across habitats influence the ability of herbaceous species to withstand embolism formation both at the interspecific and at the intraspecific levels. (*this thesis*)
- 9) The ruling paradigm defines what kinds of questions scientists can ask and how they can be answered. (*adapted from R. Sheldrake, The Science Delusion*)
- 10) Science often suppresses fundamental novelties because they are necessarily subversive of its basic commitments. (*adapted from T. Kuhn, The Structure of Scientific Revolutions*)