

Sommersemester / *Summer Term 2014*

BayCEER Kolloquium

 Vortragsreihe Ökologie und Umweltforschung
Lecture series in Ecology and Environmental Research
Donnerstag 5. 6. 2014, 12:00 Uhr, H6

Anschließend Postkolloquium mit Mittagsimbiss im Foyer H6

Dr. Brendan Choat

 Hawkesbury Institute for the Environment, University of
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The resilience of forests to drought: applying organism scale physiology to global processes

Shifts in rainfall patterns and increasing temperatures associated with climate change are likely to cause widespread mortality of forest plants in regions where the duration and severity of droughts increase. One primary cause of drought-induced mortality is hydraulic failure of the plant water transport system. Water stress creates trapped gas emboli in this transport system, which reduces the ability of plants to supply water to leaves for photosynthetic gas exchange and can ultimately result in desiccation and death. However, at present we lack a clear picture of how thresholds to hydraulic failure vary across a broad range of species and forest environments. Using a new data synthesis of woody plants (478 species from 185 sites), we show that the majority of forest species operate with narrow hydraulic safety margins against injurious levels of water stress and therefore face a high risk of mortality if significant declines in rainfall accompany increasing temperatures. Safety margins were largely independent of mean annual precipitation, with many species highly vulnerable to hydraulic failure regardless of their current rainfall environment. These findings provide insight into why climate induced mortality is occurring not only in arid regions but also in mesic forests not normally considered to be at risk. I will also discuss our group's recent findings regarding embolism repair. This process is important in determining the speed of plant recovery after drought. Our observations using synchrotron based micro computed tomography suggest that ability to refill varies dramatically between plant species depending on xylem structure.

 Do. / *Thu.* 12 st
Gebäude/*Building*
GEO
Hörsaal/*Lecture hall*
H6

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