



Impact of Mammalian Herbivory on Water Use and Transpiration of Mopane Trees

Tim Herkenrath, Jonas Roth and Katja Geißler

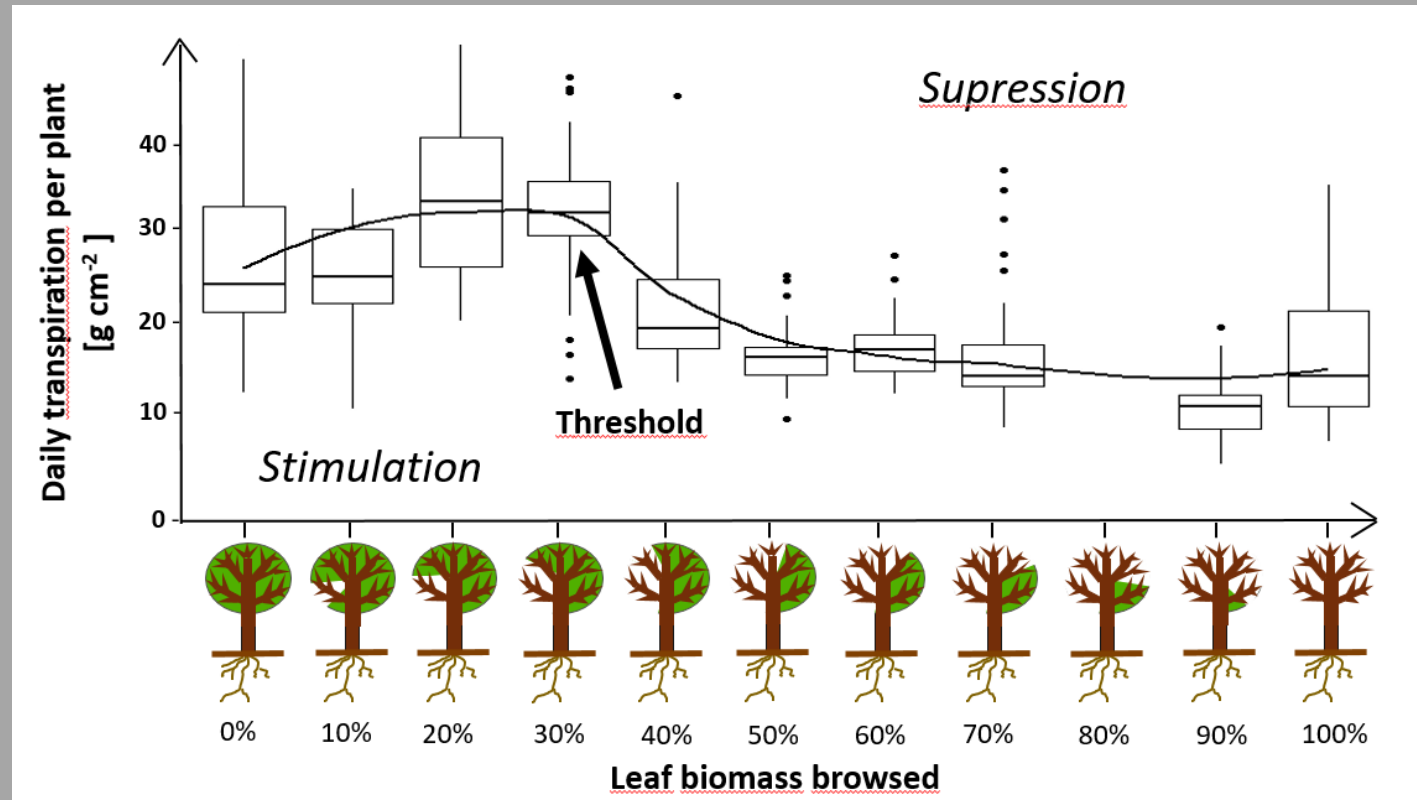
SPACES II MTM October 21st 2020

Experimental Set-Up on Etosha Heights (NAM)

- We simulated browsing in an exclosure experiment by removing leaves of 11 trees gradually at the start of the growing season
- For each individual tree, the amount of water that runs through the stem was measured with highly specialized sensors
- Loggers collected data continuously and provide information at a very fine temporal resolution



Results – Effects of Browsing on Transpiration



- Low levels of herbivorous pressure are able to stimulate transpiration
- From a threshold of 30-40% browsing intensity onwards, transpiration decreases significantly

Future Perspectives

- Further research is indispensable to cover crucial aspects of the ORYCS project:
 - Does the pattern observed persist at intermediate and large time scales?
 - Do we observe similar patterns for species others than mopane?
 - How are changes in tree water use reflected in soil moisture content and groundwater recharge rates? This includes up-scaling of our results to landscape level using remote sensing techniques.
 - Which predictions and implications emerge from these results in terms of ecosystem functioning and sustainable land use?

