The importance of soil seed bank dynamics as potential indicators of desertification tipping points

*Hamunyela, N.; *Nesongano, WC, and †Tielbörg, K.  
*University of Namibia; †University of Tübingen  
Correspondence: monaeliaser@gmail.com

INTRODUCTION
- Desertification driven by climate & land-use change is a major type of regime shift threatening the functioning of drylands.
- Soil seed banks (SSB) may buffer detrimental climatic and land use effects by enabling plants to recover from extreme events
- Therefore, seed bank studies may help understanding the potential of drylands to resist, or be resilient to desertification

Study system: a dry savanna in Namibia

Objectives
- Determine the effect of increased grazing intensity on soil seed bank size and composition

METHODS

Study area
- Semi-arid savanna in central Namibia
- Two farming management system: communal vs. commercial farming
- Observational approach along a grazing gradient away from the water source

Data collection
- Soil samples collected along the gradients (max. 81 samples /gradient)
- SSB samples germinated in greenhouse

RESULTS

Plant life form SSB
- A total of 7,329 seedlings (77 species) emerged from the SSB
- SSB was significantly larger in commercial farms
- Size and life-form composition did not change significantly along the gradients

TAKE HOME MESSAGE
- Seed banks seem unaffected by grazing intensity, indicating a potentially high resilience
- Communal farms may be closer to a desertification tipping point