An integrated framework to study ecological tipping points in social-ecological systems

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1. Background & Motivation

Growing demand for ecosystem services and global change may promote the occurrence of ecological tipping points

- **Gap**: current tipping point frameworks often focus on ecological perspectives only

2. Research Framework

We developed a new framework to examine tipping points building on social-ecological systems that are intertwined via multiple feedback loops.

- **External drivers & shocks**
  - Ecological subsystem
  - Social subsystem

We combine three approaches – retrospective, comparative, prospective – in both subsystems supported by modelling.

Integration between the ecological and social subsystem is key to understand tipping points and to manage pre-emptively

3. NamTip - A Case Study

NamTip is a transdisciplinary project aiming to understand ecological and social drivers for Desertification Tipping Points (DTPs) in Namibian savannas

**CASE STUDY REALISATION**

- **Retrospective**: time-series, archival data, interviews
- **Comparative**: space-for-time substitution, observational studies, interviews
- **Prospective**: drought-grazing experiment, serious game

Integration via interdisciplinary model-based exploration

4. Outlook

**FRAMEWORK EVALUATION**

- Accuracy
- Integration
- Resources
- Transferability
- Innovation

**COMPLETING NAMTIP**

- Finalize social and ecological studies, and synthesis
- Identify early-warning tipping point indicators
- Recommend management for drylands and ecosystems in transition

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