Biodiversity, ecosystem services, social sustainability and tipping points in African drylands

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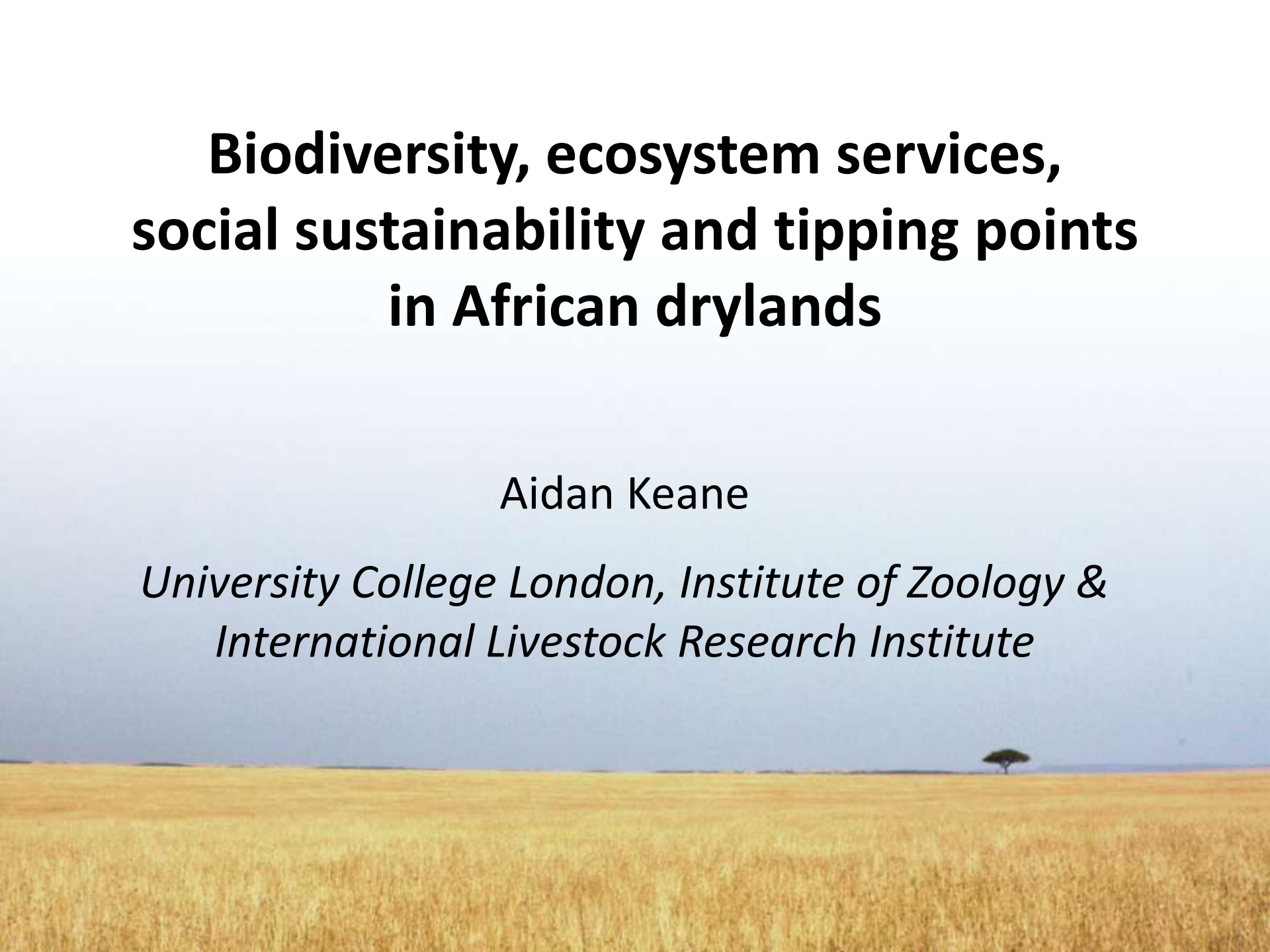


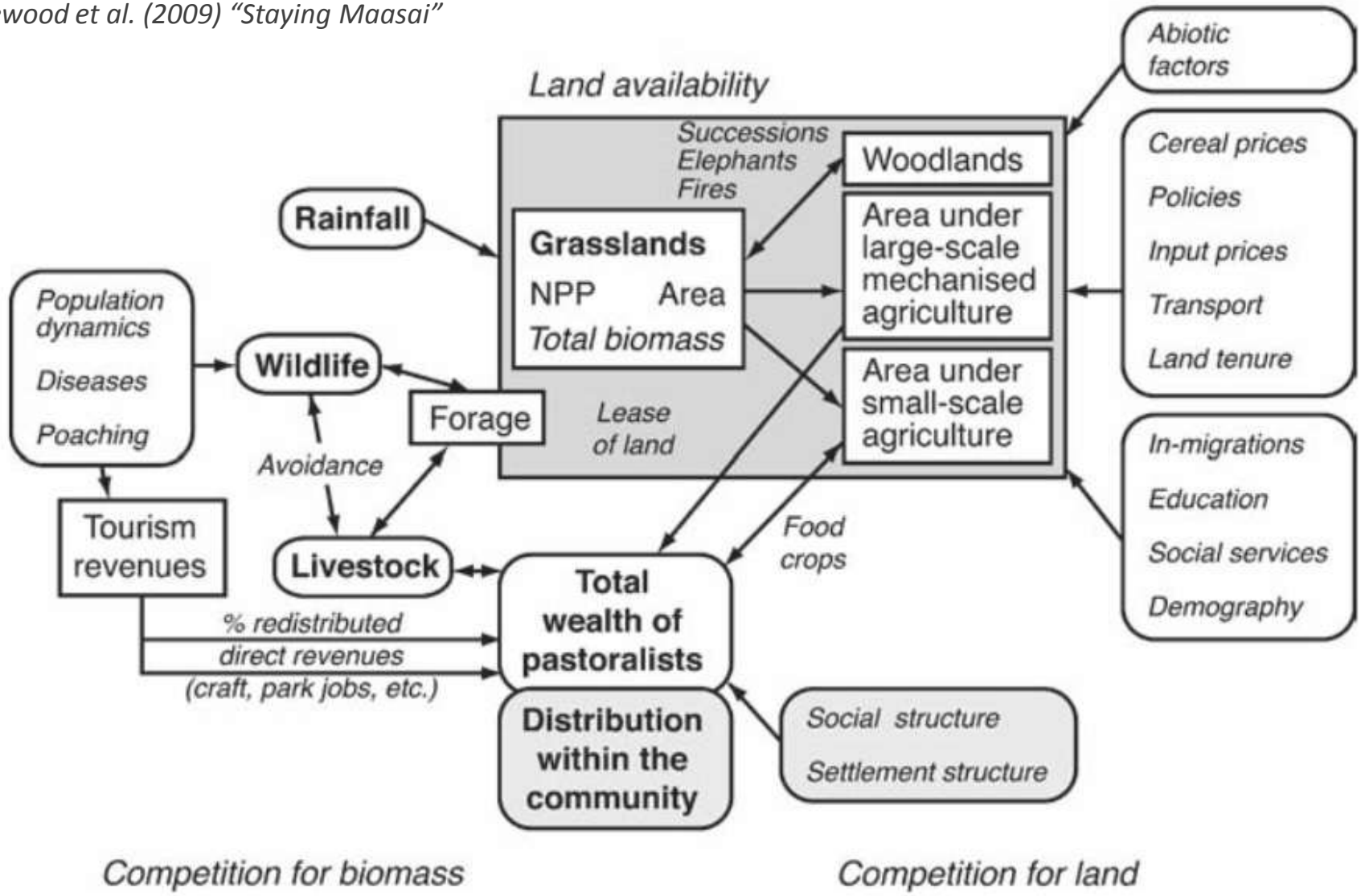
Background

- East African drylands as complex socio-economic systems
- Policy, institutional and economic changes…
  - …favouring privatisation
  - …and/or devolution of resource management
- Concern about enclosure, loss of mobility, land degradation, poverty and biodiversity loss
- Potential existence of tipping points

Objectives

- To develop a framework linking policy, land-use and livelihoods through pastoralist decision-making
- To construct and validate models of pastoralist decision-making
- To evaluate policy relevant scenarios
- To ensure that our findings are relevant for policy makers and communities

Homewood et al. (2009) "Staying Maasai"



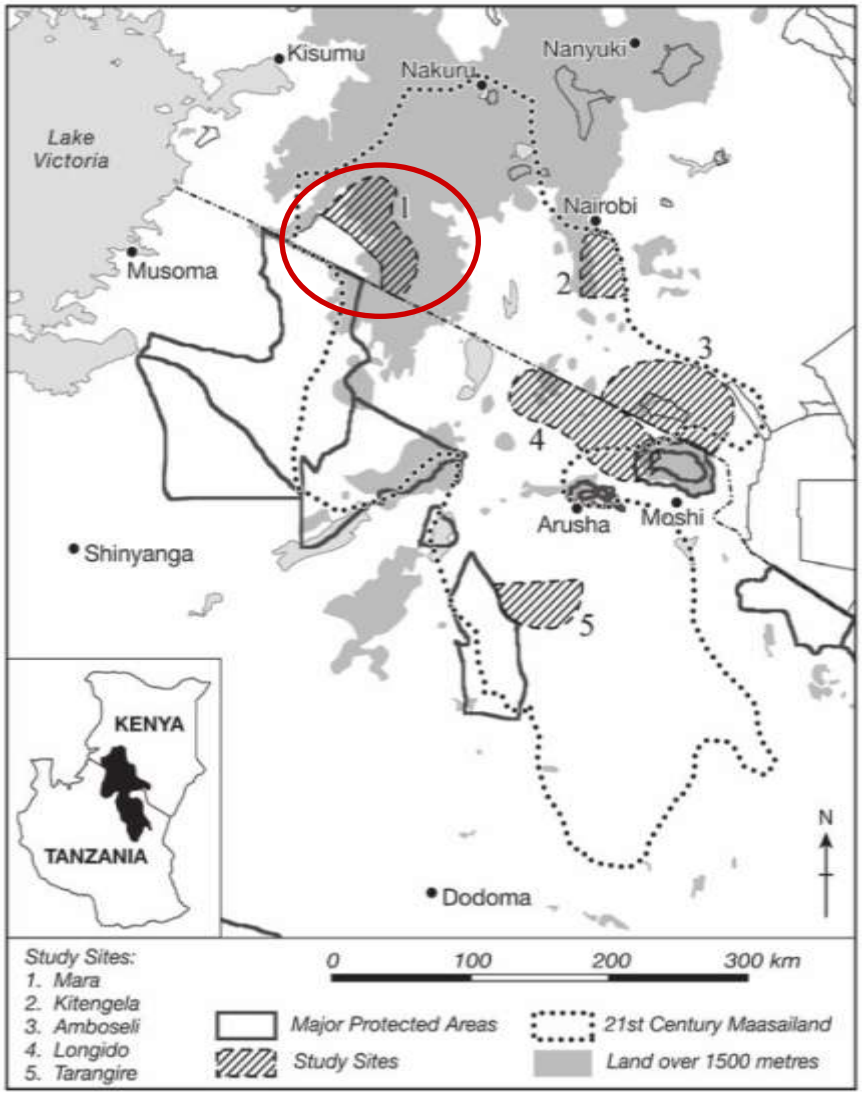


Fig. 1.1 Map of Maasailand at the start of the twenty-first century, and study sites

- Southern Kenya/northern Tanzania
- Northern Kenya/southern Ethiopia
- Initial focus on the Maasai Mara

Homewood et al. (2009) "Staying Maasai"

Research questions

- How are pastoralist households' decisions regarding the allocation of land, labour and capital to competing livelihood options affected by the establishment of conservancies?
- What are the economic and ecological consequences of these decisions, and do they exhibit trade-offs?
- How do the effects of conservancies differ between households which participate in the conservancy and those which are excluded?
- How can policy and economic incentives be designed to encourage more economically and ecologically sustainable livelihood options to be chosen?

Methods

- Statistical analysis of existing datasets
- Modelling of household decision-making
  - Utility maximisation
  - Stochastic dynamic programming
  - Strategic interaction
- Agent-based simulation modelling
- Experimental games as tests of decision-models

- …for scenario exploration (e.g., payments for ecosystem services, climate change)

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