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The impact of climate variability on the ecology of a lion (*Panthera leo* Linnaeus 1758) population and lion livestock conflicts in the Amboseli ecosystem - Kenya

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STELLINGEN

(Propositions)

Behorende bij het proefschrift:

The Impact of Climate Variability on the Ecology of a Lion (*Panthera leo Linnaeus 1758*) Population and Lion Livestock Conflicts in the Amboseli Ecosystem – Kenya

- 1 Lion populations in Amboseli NP are not isolated, as wildlife corridors exist between the park and the group ranches. Some of the lions even established new territories and new lions migrated into the population. However, considering the relatively low genetic diversity of the Amboseli lion population, this ability to disperse and survive in the surrounding landscapes and possibly connect with other lion populations may not be sufficient to facilitate gene flow within the park (this thesis)
- 2 Through evolution, predator and prey populations in the African dry savannah ecosystem have adapted to extreme climatic conditions, following a pattern of high resilience to extreme drought, with short term negative impacts but long term recovery, if human impacts can be minimized (this thesis)
- 3 Stochastic environmental fluctuations, such as extreme drought, can have important short term implications for the social structure of small lion populations (this thesis)
- 4 Climate variability in relation to climate change and unpredictable extreme droughts are a short term threat to lion populations and their prey in human dominated landscapes, due to increased lion-livestock conflicts and subsequent increased retaliatory killing, which reduces the initial resilience of the predator-prey system. Under such circumstances, small isolated populations may become threatened with extinction (this thesis)

- 5 Management of the livestock predation site of lions (disposal of kills), prompt response to community distress and predator kills, and consolation schemes could be important measures in mitigating the conflict and reducing the frequency of predator attacks, contrary to earlier findings by Woodroffe *et al.* (2011).
- 6 Recurrent drought associated with climate change may result in the extinction of a large mammal population harvested under a strategy, which theoretically would produce a sustained yield, due to a sudden decrease of carrying capacity (Caughley and Sinclair, 1994)
- 7 In the absence of extreme droughts and human interventions, carnivore population dynamics are regulated by prey population dynamics and not the other way around (Bauer *et al.*, 2005)
- 8 To reduce vulnerability of the lions to severe drought we need to restore the populations of prey species and implement measures such as community conservancies, linkages and corridors to other protected areas within the region (George Schaller, 1972)
- 9 Resources (water and prey) and especially prey dispersion are the main factors determining the home range size of large carnivores (MacDonald, 1983)
- 10 There is no doubt that climate plays a major role in limiting terrestrial species' ranges (Turner *et al.*, 2005; Wilson *et al.*, 2005; Parmesan *et al.*, 2006; Pearson and Dawson 2003).