

Potential impacts of climate projection on wildlife in savanna ecosystem of East Africa

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Abstract

Due to global land surface warming, severe temperature events are expected to happen more frequently and more extremely, altering the movement and survival of large herbivores in many ways. There are increasing observations of escalating wildlife range losses worldwide. In this study we investigated 15 large wild herbivores (4 migratory, 1 dispersing and 10 residents) and their potential ranging patterns related to their specific temperature thresholds. Previous studies have shown key temperature thresholds and species specific responses to extreme temperatures. Using the methodology of previous work, we analyzed the relationship of species specific ranging pattern with temperature for the period 2006 - 2100. Our results project that ten of the species would lose between 33-98% of their range by the year 2070 while the remaining five would lose between 2 and 30% of their range by this time. The magnitude of range loss varied among species but was most extreme (87-98%) for buffalo, Thomson's gazelle, waterbuck, and wildebeest in Kenya's rangelands. The declines were detected in all RCP (regional climate projection) scenarios, Elephant, gerenuk, kongoni, lesser kudu, and oryx are expected to retain most of their range. These range contractions raise serious concerns about the future of wildlife in the southern rangelands of Kenya. Kenya therefore has to develop plans to mitigate these temperature effects and develop policy and/or programmes to address these issues.

Sub theme: Climate change and associated challenges – Projections, reactions and reality