Past, present and future social-ecological-environmental system interactions in East Africa: changing environments = changing values

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A Landscape approach to understanding ecosystem change at multiple temporal and spatial scales is crucial.

“Natural capital is driven by the interaction between sunlight and plants”

Dr. Julius Kipn’getich, Director KWS Nairobi Sept 2010
Significant implications for ecosystem management
100 years of carbon change: Issues surrounding climate variability and management (REDD+) can be set in historical context (Willcox et al 2016 Global Change Biology)
Carbon stock change: REDD+ post Paris COP

BAU: 295,673,267 Mg C stock loss
GE: 137,014,851 Mg C stock loss

Capitani et al. in prep
Water balance change

Capitani et al. in prep
Spatial downscaling of global climate scenarios

Platts et al., 2014 African Journal of Ecology
Figure 2. Change in annual temperature across the African mountains between a) baseline and mid-21st century and b) baseline and late 21st century.
Figure 4. Change in annual rainfall across the African mountains between a) baseline and mid-21st century and b) baseline and late 21st century.
Beneath the canopy

Future developments

- Map understanding of spatio-temporal rate and direction of change.
- Integrate information to characterise ecosystem dynamics at fine grain size – to capture climate and ecosystem trends under different states.
- Apply the developing scenario approach to integrate environmental, ecological and social interactions such hydrology, biodiversity, carbon, people and livelihoods.
- Change in non-climatic factors – particularly land use, demographics, crops choice, social change
- Training and dissemination