Staggering financial shortfalls to meet biodiversity targets in Kenya

Biodiversity is highly valuable for ecosystem functioning and the provision of ecosystem services, such as carbon sequestration and flood control. However, biodiversity is threatened by multiple human pressures on the natural environment, such as habitat loss and degradation. Acknowledging both the importance of and the threats to biodiversity, the Convention on Biological Diversity was adopted as part of the United Nations Environment Programme and has set the goal to protect 17% of the terrestrial ecosystems by 2020. Kenya contains areas of outstanding biodiversity and natural heritage (forming part of a global “biodiversity hotspot”), but currently only 10% of the country's land surface is covered by protected areas, falling short of the 17% target adopted by the Convention on Biological Diversity. This study aimed to support conservation efforts in Kenya by 1) identifying optimal locations that could serve as additional protected areas to reach the 17% target and 2) assessing the economic costs of meeting those targets in relation to currently available funds.

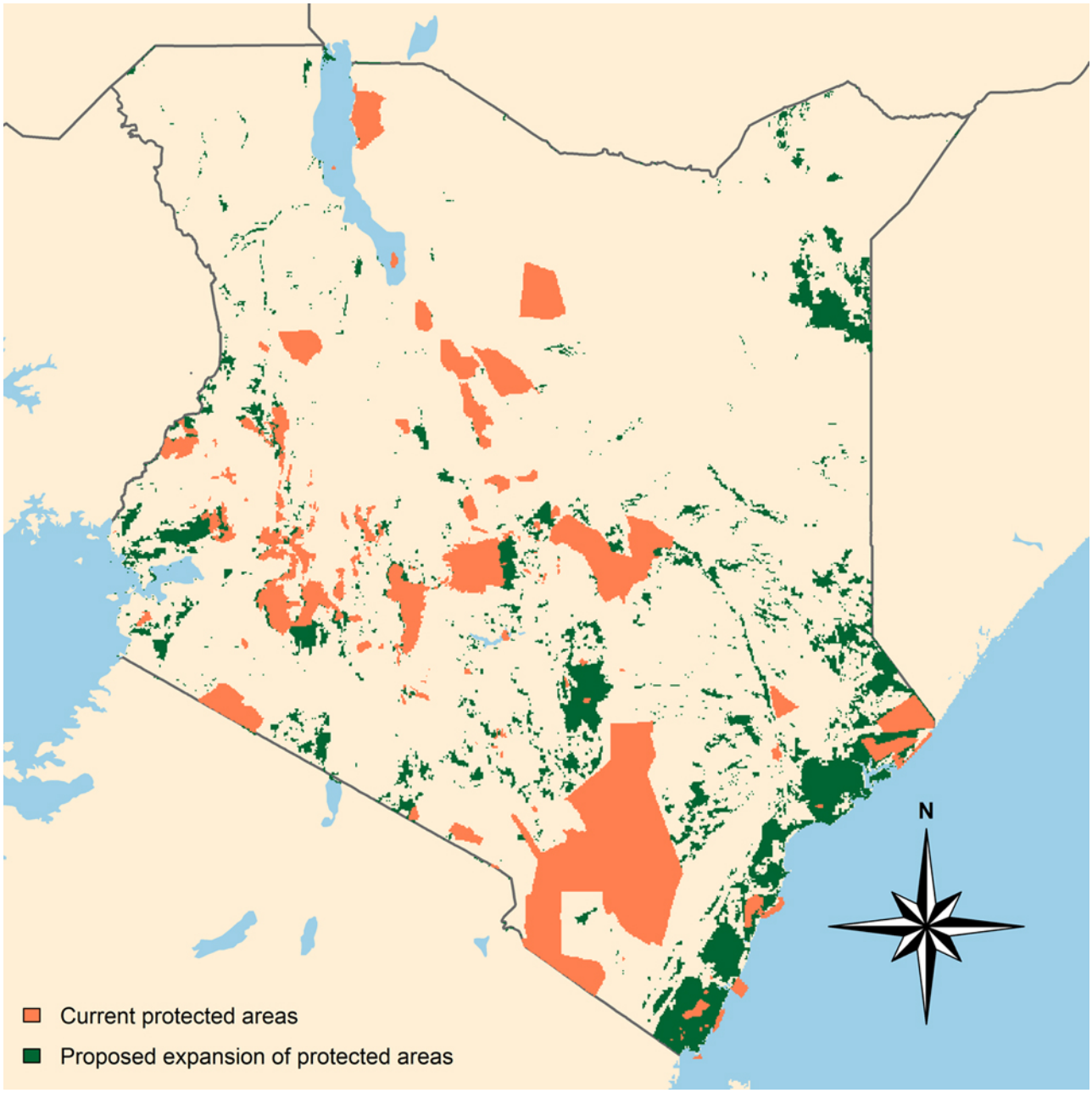

Fig. 1. Kenya's existing protected areas and the areas proposed to be protected in addition.

To do this, the study predicted plant diversity, as a proxy for overall biodiversity, throughout Kenya by relating site-based records of plant species to the climate, soil and topography of Kenya using spatial statistics. The data were taken from a comprehensive vegetation-plot database for East Africa (ID AF-00-006 in the Global Index of Vegetation-Plot Databases). The predicted plant diversity throughout Kenya was fed into a spatial optimization software called Zonation, together

with data on the economic opportunities forgone by protecting intact habitat (e.g. the loss of income from agricultural production that could have occurred had the protected area not been established). Our results suggest that protected area expansion should concentrate mainly in the Coast and North-Eastern Provinces of Kenya. However, since we lacked vegetation data in many of these areas, our results need to be verified by additional data collection to both confirm the results and improve the model.

Under the agreement of the Convention on Biological Diversity, developed countries are liable to financially support additional biodiversity conservation in developing countries such as Kenya via the Global Environment Facility. However, managing the proposed and the existing protected areas would require about 50 times more funds from the Global North than Kenya has received thus far from the Global Environment Facility. Even the effective operation of existing protected areas urgently requires more funding to curb rampant poaching among other imminent threats. This highlights the vast practical and financial challenges ahead for conserving Kenya's rich biodiversity.

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