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I map how wildlife and people use Mount Kenya and what the future could look like, using these to help understand how different parties would be affected by future environmental changes.

Abstract

Protected areas (PAs) remain a cornerstone of conservation efforts, designed mainly to safeguard valued biodiversity or ecosystem services. Their ability to conserve these features heavily depends on effective governance structures. Decision-makers must be able to recognise and manage trade-offs between the needs of a multitude of stakeholders and also prioritise where and when to best allocate available resources. Conservation planning refers to a systematic approach that can aid in PA management by helping identify, develop and implement these conservation management actions. It does this through a transparent, inclusive and iterative approach, which draws on strategic and spatial planning practices.

The Mount Kenya landscape centres on a network of state, county and privately owned PAs, which are surrounded by agricultural land. Biodiversity features include Kenya's largest contiguous forest, several endemic species of flora and fauna, a remnant population of the Kenyan endemic eastern bongo antelope and more than 2,000 African savannah elephants, which are the focus of new habitat linkage projects. The area annually attracts thousands of tourists and has ecosystem service benefits which include water provision, recognised as integral to the nation's economic and environmental health, and mixed land-use areas where plantation forestry, crop cultivation, livestock grazing and other resource use activities are permitted.

My research will use the latest techniques in ecological and landscape connectivity modelling, using elephants as a proxy, which will then be combined with other datasets to understand the dynamics of biodiversity conservation values within the landscape. I will then run a collaborative ecosystem service valuation process, which will allow weighting of services based on different stakeholder perspectives and measurement of the socioeconomic benefits of the landscape. These will finally be used to inform a participatory conservation planning process, which will help understand how future, stakeholder-defined land-use scenarios could affect both goals of biodiversity and ecosystem service conservation.