

Using repeat photography to observe vegetation change over time in Gorongosa National Park

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Abstract

Protected areas are important conservation tools, as they can be managed to preserve baseline ecosystem health, including that of vegetation dynamics. Understanding long-term ecosystem dynamics within a protected area enables one to understand how this static park landscape responds to outside pressure and changing drivers. In this study, a repeat photography analysis was used to analyze changes in the vegetation pattern and abundance at Gorongosa National Park in Mozambique across seventy-two years of the parks history. Archival photographs dating as far back as 1940 were selected for sites that could be relocated in a subsequent field visit in 2012. Qualitative and quantitative analysis on vegetation abundance by structural group was undertaken using Edwards' Tabular Key. Results when comparing the photographic pairs show that, in general, tree cover has increased on average from 25 percent to 40 percent over the last seventy-two years. This 15 percent increase may be in response to environmental drivers such as human management, herbivory, fire, and precipitation. Contrary to many recent studies on shrub encroachment in southern Africa, this study finds an increase in

tree cover. Such analysis and results are valuable in that they demonstrate long-term ecological change within a managed protected area.