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**RESPONSE OF AMPHIBIAN COMMUNITIES TO FOREST
DEGRADATION IN MABIRA CENTRAL FOREST RESERVE, UGANDA**

BY

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ABSTRACT

The relationship between amphibian diversity and forest degradation was evaluated in Mabira Forest Reserve, Central Uganda. To achieve this, the study area was classified into three forest categories (i.e. degraded, regenerating and mature forest) on the basis of dominant vegetation type and history of management. Six transects, 300m long and 10m wide were established per forest category and sampled four times between March and July 2015 using Visual Encounter Surveys. Seven environmental parameters (temperature, relative humidity, leaf litter depth, leaf litter cover, grass cover, canopy cover and altitude), describing the microhabitat characteristics of the study areas were measured per transect.

From an effort of 216 man-hours, a total of 30 anuran species, belonging to 8 families were recorded. Seven of these species constituted possible range extensions. Comparisons between forest areas revealed significant differences in species richness, composition and relative abundance among forest areas. The regenerating and mature forest categories had similar species composition dominated by forest dependent amphibian species, though species richness was significantly higher in the former. In contrast, the degraded forest areas had distinct species composition, dominated by wide spread open habitat species, though species richness was similar to regenerating forest areas; in addition, several forest dependent species, recorded in the regenerating and mature forest areas were absent from degraded forest areas, a clear indication of forest microhabitat alteration. One-way ANOVA revealed significant differences in measured environmental variables among study forest areas, a clear indication of forest microhabitat alteration as a result of degradation. There was also a significantly strong correlation between species occurrence patterns and the measured environmental variables as reflected in the CCA analysis. In the regenerating and mature forest areas, species distribution was significantly associated with closed canopy, high relative humidity and thick leaf-litter cover, whereas, in the degraded forest areas, species distribution was significantly associated with percentage grass cover and temperature. I recommend maintaining forest areas with thick leaf-litter cover, more closed canopies and high relative humidity in order to ensure conservation of the reserve's amphibian diversity and prevent invasion by species from the surrounding matrix.