Integrating local and indigenous knowledge to model Grauer's gorilla protection in the community forests of eastern Democratic Republic of Congo

Ngobobo -As- Ibungu Urbain[*1]

[1]NGOBOBO -As- Ibungu Urbain (DFGFI) – 18, Boulevard Kanyamuhanga, Goma, Nord Kivu,, Congo - Kinshasa

Abstract

Grauer's gorillas are among the world's most endangered primates. Past research on Grauer's gorillas has focused on a high-altitude population from Kahuzi-Biega National Park. Yet, most Grauer's gorillas live in the low altitude primary forests of the east of the Congo basin, including in the community forests and National parks, where terrain, climate and food availability greatly differ from montane forests. We hired local and indigenious people to study gorilla presence, abundacy, distribution and continuously tracked a single Grauer's gorilla group ranging at an altitude of 600m between Maiko and Kahuzi-Biega National Park for over 3 years. Along the group's trail, we systematically collected GPS data every 50m, identified food remains and counted nest sites. During the study period, the group's home range had a diameter of around 10 km and nest sites included 20 nests on average. The group's daily travel distance typically ranged between 500m and 2,000m. However, the gorillas only used a small portion of the available habitat. They preferred travelling along valleys and avoided hilltops. The analysis of multispectral satellite imagery revealed that the vegetation in these valleys is different, with a more open canopy than the hilltops. The vegetation undergrowth of the valleys is denser, providing the gorillas with the Zingiberacea, Marantaceae and Commelinaceae plants they consumed. Understanding habitat requirements of low altitude Grauer's gorillas will help conservationists model a conservation strategy in eastern Congo that are susceptible to host large Grauer's gorilla populations and will help focus conservation efforts.

Keywords: local community, indigenious knowledge, grauer's gorilla, ranging patterns, community forest

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[*]Speaker