



## Quarterly Conservation Update - Kordofan Giraffe (*Giraffa camelopardalis antiquorum*), Garamba National Park, Democratic Republic of Congo.

September 2019

### Summary

1. A scientific paper based on the Master's research of Mathias D'haen describing the population structure and spatial ecology of Garamba's giraffe was published.
2. A total of 32 different giraffe were identified between June and September 2019 from an estimated total population of 55 giraffe recorded in the annual giraffe population assessment.
3. Two giraffe – GIR26F and GIR03F, were finally observed again after an absence of about a year.
4. Giraffe faecal samples collection initiated in partnership with Stanford University researchers to assess their diet and genomics in Garamba NP.

### Programme

A scientific paper based on the Master's research of Mathias D'haen, on the population structure and spatial ecology of Garamba's giraffe, was published by peer-reviewed Journal of Ecology and Evolution in September 2019.

**Paper reference:** D'haen, M., Fennessy, J., Stabach, J. A., & Brandlová, K. (2019). Population structure and spatial ecology of Kordofan giraffe in Garamba National Park, Democratic Republic of Congo. *Ecology and Evolution*.



## Abstract

- Population numbers of Kordofan giraffe (*Giraffa camelopardalis antiquorum*) have declined throughout its range by more than 85% in the last three decades, including in the isolated eastern most population founding the Garamba National Park (NP) in the Democratic Republic of Congo.
- We provide new data on the conservation status and ecology of Kordofan giraffe in Garamba NP, specially on the current population dynamics, distribution patterns, and spatial ecology for informed conservation management decisions.
- Data were gathered between September 26, 2016 and August 17, 2017, though direct observation and from eight GPS satellite collars deployed in early 2016. Movements, distribution patterns, and autocorrelated kernel density home ranges were estimated using the Continuous-Time Movement Modeling (CTMM) framework. We then compared results with home ranges calculated using the kernel density estimation (95% KDE) method.
- The Garamba NP population was estimated to be 45 giraffe with a female-dominated sex ratio (35% males; 65% females), and adult-dominated age class ratio (11.2% juveniles; 17.7% subadults; 71.1% adults). The giraffe's distribution was limited to the south-central sector of the Park, and giraffe were divided over different areas with some degree of connectivity. The average giraffe home range size was 934.3 Km<sup>2</sup> using AKDE and 268.8 Km<sup>2</sup> using KDE. Both methods have shown surprisingly large home ranges despite of the relatively high humidity of Garamba NP.
- Based on the outcomes of this research, urgent conservation action is needed to protect Garamba's remaining giraffe population.

A total of 189 giraffe in 56 herds were observed in Garamba NP during this quarter. Of those observed, 32 individuals were identified from photographs using the dedicated giraffe database of 55 individuals' giraffe of Garamba NP.

Two giraffe – GIR03F and GIR26F, which had not been observed for eleven and seventeen months respectively were observed again during this quarter.

The giraffe monitoring efforts during this quarter included approximately fourteen (14) hours of aerial surveillance (using the Husky and Cessna) and 35 hours of vehicle patrols covering a total distance of 593 km.

It was difficult to find all giraffe identified in the April 2019 Kordofan giraffe population assessment due to high grass (rain season) and associated logistics limiting accessibility and visibility across all the giraffe range.

A joint study between Stanford University researchers and the Garamba NP Research and Monitoring team began data collection in May 2019. This study involves the collection of faecal samples from giraffe (and other species) to initiate a detailed Garamba NP giraffe genomics and

diet studies. A dozen samples have already been collected pending the start of the laboratory analyses that will be carried out at the Stanford University laboratory in the United States.

## Upcoming Quarter

- Workshop on National Giraffe Conservation Strategy and Action Plan in Nagero with support of the Giraffe Conservation Foundation.
- Ongoing giraffe monitoring by aerial surveillance and vehicle.



**Figure 1:** A small herd of giraffe in Garamba National Park, including GIR03F who had not been observed for 11 months.

With thanks to our partners:

