

Assessment of giraffe populations and conservation status in East Africa

People's Trust for Endangered Species

Final Report: May 2016



Focal species: Giraffe *Giraffa camelopardalis*

Subspecies: Masaai giraffe *Giraffa camelopardalis tippelskirchi*
Reticulated giraffe *Giraffa camelopardalis reticulata*
Rothschild's giraffe *Giraffa camelopardalis rothschildi*

Project location: Kenya

OVERVIEW

Populations of giraffes *Giraffa camelopardalis* are declining in the wild, with some populations having suffered an 80% decline in the past ten years. In comparison to other large African mammals, giraffes have been largely overlooked in terms of research attention and conservation action. In recent years, the extent to which giraffe populations have declined across Africa has only just started to become apparent.

Currently (as of May 2016), giraffes are listed as Least Concern on the IUCN Red List of Threatened Species. However, this listing does not reflect the true conservation status of giraffes in the wild, and is more a reflection of limited conservation focus on giraffes, and a lack of comprehensive status reviews. Of the nine currently recognised subspecies, two have been assessed at the subspecies level, and seven are currently unassessed. The two which have been assessed - *G. c. Rothschildi* and *G. c. peralta* – are both listed as Endangered. When the remaining seven subspecies are reviewed, it is likely that their conservation classification will change to better reflect current population status.

Kenya is the only country in Africa with three giraffe subspecies; *G. c. Rothschildi*, *G. c. tippelskirchi* and *G. c. reticulata*, and as such, holds the highest level of giraffe biodiversity in Africa. Of these, *G. c. Rothschildi* is classified as Endangered with fewer than an estimated 1,100 individuals remaining in the wild. *G. c. reticulata* is thought to number fewer than 5,000 individuals, and has suffered a 40% decline in the past ten years. *G. c. tippelskirchi* has suffered an 80% decline in the past ten years.

Despite such alarming figures, there is little research or conservation work focused on giraffes in comparison to other large mammals, and the species has traditionally been overlooked. This project sought to address this lack of knowledge by conducting a general review and overall assessment of giraffe populations in Kenya. A country-wide assessment of giraffe populations is critical to Kenya's conservation plans for giraffes.

Table 1 lists the three subspecies found in Kenya.

Table 1 Overview of the three giraffe subspecies found in Kenya.

Subspecies	Scientific name	IUCN Red List classification	Distribution	Main threats facing this subspecies
Masaai giraffe	<i>Giraffa camelopardalis tippelskirchi</i>	Not yet assessed at the subspecies level	Southern Kenya and throughout Tanzania	<ul style="list-style-type: none"> • Livestock farming & ranching • Livestock farming & ranching - Nomadic grazing • Livestock farming & ranching - Small-holder grazing, ranching or farming • Roads & railroads • Hunting & trapping terrestrial animals - Intentional mortality (human use) • War, civil unrest & military exercises
Reticulated giraffe	<i>Giraffa camelopardalis reticulata</i>	Not yet assessed at the subspecies level	North-eastern Kenya, southern Ethiopia, Somalia	<ul style="list-style-type: none"> • Livestock farming & ranching • Livestock farming & ranching - Nomadic grazing • Livestock farming & ranching - Small-holder grazing, ranching or farming • Roads & railroads • Hunting & trapping terrestrial animals - Intentional mortality (human use) • War, civil unrest & military exercises
Rothschild's giraffe	<i>Giraffa camelopardalis rothschildi</i>	Endangered (2010)	Rift valley region of Kenya, and Uganda	<ul style="list-style-type: none"> • Livestock farming & ranching • Hunting & trapping terrestrial animals - Intentional mortality (human use) • Logging & wood harvesting - Intentional mortality (human use - subsistence/small scale)

PROJECT OBJECTIVES:

- To complement and expand current knowledge of giraffe populations in Kenya
- To provide a generalised overview of giraffe populations in Kenya
- To identify the distribution of giraffes in Kenya
- To identify and list the threats facing giraffe populations in Kenya

RESULTS

Data were gathered on the population size and distribution for each of the three giraffe subspecies found in Kenya. Data were gathered and collated from a variety of sources, including direct counts, published population estimates, wildlife surveys, unpublished technical reports and KWS census reports.

The total number of giraffes in Kenya is estimated at 19,221 individuals. Of this figure, Masaai giraffes account for the highest proportion of all giraffes in Kenya (54%), reticulated giraffes represent the second highest proportion (44%) and Rothschild's giraffes are the fewest at 2%.

ROTHSCHILD'S GIRAFFE POPULATION SIZE

The estimated population size of Rothschild's giraffes in Kenya is 410 individuals (see table 2). Threats are mainly related to habitat loss and inbreeding, since they are largely constricted to confined populations in the Rift Valley region of Kenya.

Table 2 Estimated population size for the Rothschild's giraffe in Kenya

<i>Giraffa camelopardalis rothschildi</i>			
IUCN status: Endangered			
	Population size	Status	Threats
ACTUAL COUNT DATA 2014/15			
Ruma National Park	68	Stable	Poaching, habitat loss
Lake Nakuru National Park	89	Stable / declining	Predation
Soysambu Conservancy	78	Increasing	Inbreeding, disease
Kigio Conservancy	32	Increasing	Inbreeding, disease
Ruko Conservancy	9	Increasing	None
Giraffe Centre, Nairobi	10	Stable	Inbreeding, predation
Mwea National Reserve	34	Stable / increasing	Poaching, habitat loss
TOTAL	320		
ESTIMATE DATA 2010 – UNVERIFIED 2014/15			
Mt. Elgon NP	<20	Unknown	Habitat loss, poaching
Murgor Farm, Iten	<20	Unknown	Habitat loss, poaching
Sergoit -Kruger Farm, Iten	<20	Unknown	Habitat loss, poaching
Kitale area farm	<10	Unknown	Habitat loss, poaching
Nasalot National Reserve	<10	Unknown	Habitat loss, poaching
TOTAL	<90		

DEMOGRAPHIC INFORMATION

During the course of the fieldwork, data on population demographics and group size were collected. Figure 1 shows the frequency of group types observed in giraffe populations. Figure 2 shows the group sizes observed during field work. The most frequently observed group type was that of "mixed sex"; i.e. males and females in the same group. Lone males were the second most frequently observed group type. Mean group size was 14, median group size was 9, modal group size was 1. This information is useful to build a baseline which can be used for conservation management, and for monitoring the success of (re)introductions.

Figure 1 Frequency of group type data for populations of giraffes in Kenya

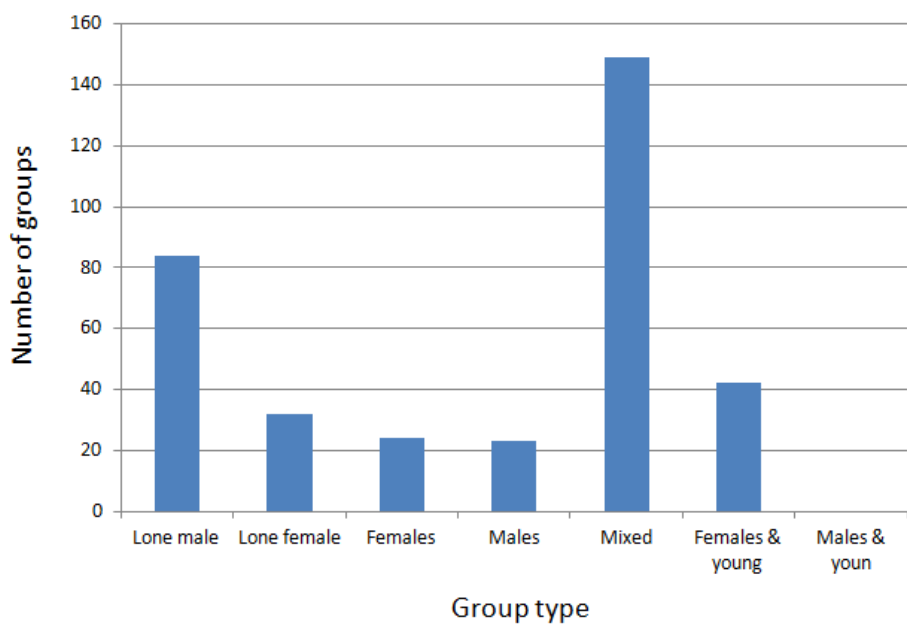
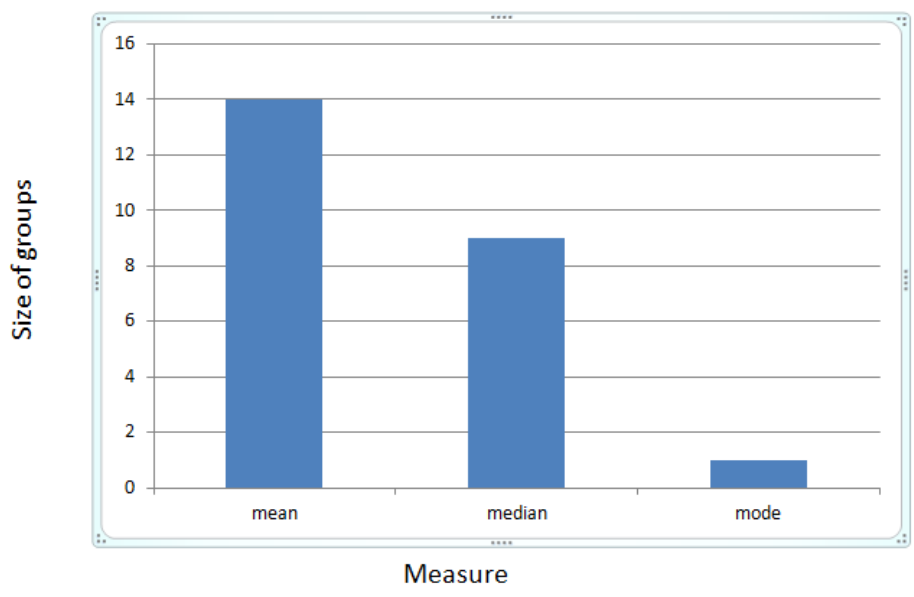


Figure 2 Mean, median and modal group size types observed during field work in Kenya



THREATS FACING GIRAFFES IN KENYA

Little information is available about the threats facing giraffes in Kenya, though it is likely that the threats facing giraffes are similar to those threats facing other large mammal species. Each subspecies of giraffe in Kenya faces slightly different threats, often due to the differences in the areas they inhabit. For example, reticulated giraffes are more at risk to poaching, since they live in an area with more armed conflict and nomadic human cultures, whereas Rothschild's giraffe are more at risk of habitat loss and genetic restrictions, due to being confined to fenced conservation areas in the Rift Valley. Identification of the threats facing giraffes is critical for the effective development of conservation plans, and in order to identify priorities for future research and conservation work.

A comprehensive review of threats facing giraffes was carried out, and the following list compiled:

- Poaching for meat, hides and medicinal uses (of coat and tail)
- Habitat loss, fragmentation and constriction
- Loss of migration corridors
- Insular effects (e.g. fencing and enclosure)
- Predation by lion, hyena and wild dog
- Drought/El Nino events (see Brenneman *et al.* 2009)
- Possible dietary complications from high tannin concentrations due to forced over consumption of acacia trees may be compromising the health and thriftiness of the young giraffe making them easy and opportunistic prey for the lions (see Brenneman *et al.* 2009)
- Food shortage from the decline in preferred Acacia trees (*A. xanthophloea*)
- A genetic effect from inbreeding depression
- Habitat destruction and fragmentation
- Limited carrying capacity in enclosed conservation areas
- Habitat destruction, i.e. giraffe mediated heavy debarking of the *A. xanthophloea* trees

COMMUNICATIONS

The following communications have been delivered in relation to this work:

August 2015: GCF Giraffe Indaba, South African College of Wildlife, South Africa
Presentation given and poster presented about giraffe research work in Kenya
Participation in the IUCN Giraffe & Okapi Specialist Group (GOSG) workshop

May 2016: Giraffid conference held at Brookfield Zoo, IL, USA
Guest Speaker; one-hour presentation given on giraffe research work in Kenya

Muller, Z. (2016) White giraffes: The first record of vitiligo in a wild adult giraffe. *African Journal of Ecology*, Early view online DOI: 10.1111/aje.12323