

National Giraffe Conservation Strategy & Action Plan

Democratic Republic of Congo

2018 - 2020



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Abbreviations

AP	African Parks
CoCo	Community Development Department
DDD	Direction du Développement Durable (Sustainable development department)
DCS	Domaine des chasses (Hunting Reserve)
DRC	Democratic Republic of Congo
GCF	Giraffe Conservation Foundation
GNP	Garamba National Park
GPS	Global Positioning System
GSD	Giraffe Skin Disease
HR	Human Resources
ICCN	Institut Congolais pour la Conservation de la Nature
IUCN GOSG	International Union for Conservation of Nature Giraffe and Okapi Specialist Group
NGCSAP	National Giraffe Conservation Strategy and Action Plan
LE	Law Enforcement Department
Ossi-Unit	Ossicone Unit, newly developed GPS transmitters by GCF and partners
R&M	Research and Monitoring Department
SE	Standard Error
SPLA	Sudan People Liberation Army

1. Preface

Being based on sound science, the National Giraffe Conservation Strategy and Action Plan, the country's first, forms a framework to support the next three years of giraffe conservation and management in the Democratic Republic of Congo (DRC) by identifying clear objectives, actions and indicators to be addressed in order to meet the goals outlined for the Vision.

2. Introduction

2.1. Taxonomy

Species: Northern giraffe (*Giraffa camelopardalis*)
Subspecies: Kordofan giraffe (*Giraffa camelopardalis antiquorum*)

Garamba National Parks (GNP) giraffe were historically classified as 'Congo giraffe' (Amube *et al.* 2009; De Merode *et al.* 2000; East 1999) but since have proved to be genetically identical to other Kordofan giraffe across Central Africa (Fennessy *et al.* 2016). As such, and based on IUCN and recently proposed giraffe taxonomy, the DRC giraffe are subsumed into *G. c. antiquorum*.

2.2. Conservation Status

IUCN Red List (IUCN 2017-1; Muller *et al.* 2016):

1. *Giraffa camelopardalis* (as a species) – Vulnerable
2. *Giraffa camelopardalis antiquorum* – Not assessed

As a single species, a recent Red List assessment of giraffe was submitted to IUCN for evaluation and in December 2016 was uplisted to 'Vulnerable' (Muller *et al.* 2016). Similar assessments and reviews for each of the currently nine recognised subspecies is proposed to be submitted to IUCN in the next year. Based on preliminary work and assessing the rate of decline of the Kordofan giraffe over the last 30 years (three generations of giraffe), they will potentially be uplisted to 'Critically Endangered'. This change in conservation status will be important for their long-term management and protection.

In the DRC, giraffe are classified by the Congolese Wildlife Authority, the Institut Congolais pour la Conservation de la Nature (ICCN), as a rare or endangered species that is fully protected and may not be killed (Law 14/003 of 11 February 2014, article 13 and 14).

2.3. Background

The DRC's GNP, created in 1938, is one of the oldest national parks in Africa and borders South Sudan on the Congo-Nile watershed (De Merode *et al.* 2000). Together with the northern white rhino (*Ceratotherium simum cottoni*), the Kordofan giraffe were important in motivating GNP's for its declaration as a World Heritage Site in 1980 (Marais *et al.* 2013).

Giraffe in the DRC are currently restricted to GNP and adjacent Hunting Reserves in the north east of the country (Amube *et al.* 2009; De Merode *et al.* 2000; East 1999). The Garamba complex consists of GNP (5,133 km²) and three adjacent Hunting Reserves: Azande to the west, Gangala na Bodio to the south and Mondo Missa to the east, totalling a further 14,793 km² (Amube *et al.* 2009; De Merode *et al.* 2000; East 1999; Hillman Smith 1985).

Falling within the Sudano-Guinea savanna zone, the vegetation of the Park varies from well-watered open long grass savanna in the south through increasing bush and woodland towards the higher ground of the north (Marais *et al.* 2013). The surrounding Reserves are more wooded than the Park and therefore form an important part of the larger habitat for the giraffe seasonally.

The Park is managed by ICCN, the DRC government's conservation authority,. Importantly, for most of the last forty years it has relied on international partnerships to support its conservation activities. Following the end of an FAO/UNDP project in the 1970s, serious illegal hunting of elephant (66%), rhino (97%) and giraffe (50%) occurred, possibly a result of their transitory movement out of the Park. From 1984 to 2005 the ICCN was partnered by the Garamba Project supported by a consortium of international donors and numbers of wildlife increased until civil unrest broke out again. Since 2005, the Park has been managed by African Parks Network (APN) in partnership with the ICCN.

The Park has faced many challenges, several of which have been related to Central Africa's turbulent political landscape (Cunliff 2010a; Amube *et al.* 2009; Hillman Smith & Ndey 2005; Hillman Smith 2004; Hillman Smith *et al.* 2003a) resulting in decimated wildlife numbers, including giraffe.

Interestingly, the Azande and Mondo tribes living in the Hunting Reserves adjacent to GNP historically believed that consuming giraffe meat caused leprosy, and although this limited local poaching, possession of giraffe tail hair fly whisk was a status symbol of the Mondo traditional chiefs (African Parks 2012). However, according to Amube *et al.* (2009), the traditional taboos have largely died out with the influence of modern society and the invading *muharaleen* horsemen who specifically valued giraffe tails as part of their dowries. As a result, illegal hunting of giraffe has increased in the Park (Amube *et al.* 2009). A decline in wildlife populations is furthermore linked to post-war instability, power struggles and exploitation of resources, particularly from neighbouring countries also facing civil unrest (Hillman Smith & Ndey 2005).

3. Status Review

3.1. Historic

Recent records of the occurrence of giraffe in the DRC are limited to the Garamba ecosystem, but in the past they occurred throughout the savannas of *Haut Uele* in northern Congo (de Saeger 1954) (see Fig. 1). In the 1950s, giraffe were distributed throughout GNP, but at somewhat lower density in the north-west due to illegal hunting (Verschuren 1958). Verschuren (1958) estimated at least 300 giraffe in the Park and noted that counts by Cornet d’Elzius had observed at least 60 giraffe in the *Hunting Reserve Gangala-na-Bodio* to the south of the Park (East 1999). The presence of a large elephant population has opened the habitat over the last few decades resulting in giraffe largely moving into the peripheries of the Park and the adjacent Reserves, where woodland density is higher (Amube *et al.* 2009; De Merode *et al.* 2000; East 1999).

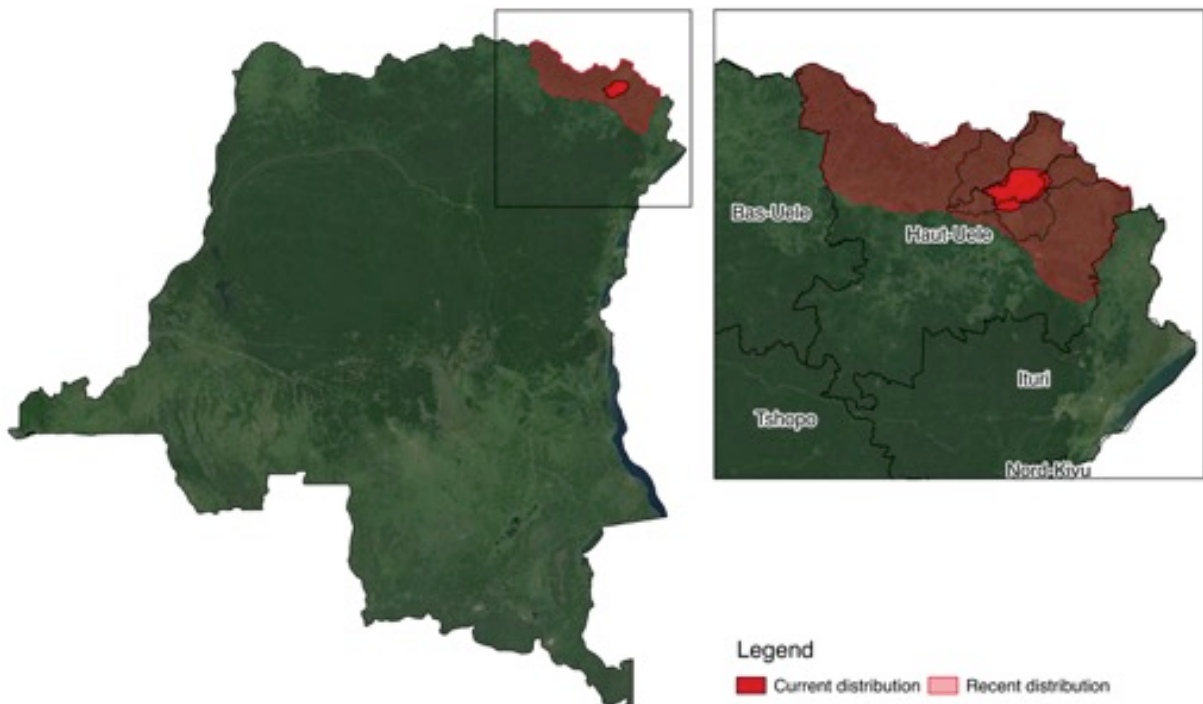


Figure 1. Recent and current distribution of Kordofan giraffe in the DRC.

3.2. Recent

The first systematic aerial census of GNP, carried out in 1976, estimated the giraffe population at 350 individuals (Savidge *et al.* 1976). The same method was subsequently applied from 1983 to 2004. Throughout most of the 1980s and 1990s, surveys also included full coverage of the more wooded surrounding Reserves, though visibility is sometimes limited.

Systematic sample counting in the Park, even with high density stratification of the southern sector, yielded fairly high standard errors for species with low numbers and clumped distribution, including for giraffe. As a result, fluctuations in numbers resulted, but no significant reduction in numbers occurred until the effects of increased illegal hunting resulted during the civil unrest.

Between 1976 and 1983 there was large-scale illegal hunting of all wildlife and figures from the 1983 count also indicated a decline in giraffe numbers, though this may have partly been due to movement out of the Park. However, during the first ten years of the Garamba Project, from 1984 to 1995 numbers of most species, including giraffe, rose. The 'Liberation' civil war which affected GNP in late 1996 and early 1997, with disarming of guards, anti-poaching being forced to stop completely for several months and penetration of the Park by poachers that were largely Sudanese. The 1998 post-war count indicated a subsequent fall in giraffe numbers. In August 1998, the second civil war started and although conservation activities were maintained and wildlife numbers remained relatively stable, constraints on the transport of aircraft fuel prevented the surveys.. Illegal hunting rose disastrously in 2003/04 with invasions by the Sudan People Liberation Army (SPLA) and Sudanese *janjaweed* horsemen and giraffe numbers fell again to a historic low of 22 individuals in 2012 (African Parks 2012).

3.3. Current

Numbers since 2012 have fluctuated but remain relatively stable with 42 giraffe recorded on the aerial survey of 2014 and 34 giraffe on the aerial survey of 2017. The most recent figures, using individual identification field methods of all known giraffe in the Park, estimate a minimum of 45 individuals (M. D'haen pers. comm.).

The giraffe are predominantly observed in the southern sector of GNP and in the areas that extend to the Azande, Mondo Missa and Gangala na Bodio Hunting Reserves (see Table 1).

Table 1: Aerial survey data for giraffe in Garamba National Park and surrounding Hunting Reserves from 1976 to 2017.

Year	Garamba NP	SE	Reserves	Source
1976	350	±250	Not surveyed	Savidge et al. 1976
1983	175	±163	20	Hillman Smith et al. 1983
1984	237	±144	0	Hillman Smith 1989
1986	153	±140	13	Hillman Smith 1989
1991	346	±203	46	Smith et al. 1993
1993	347	±419	0	Smith et al. 1993
1995	178	±210	52	Hillman Smith et al. 1995
1998	144	±73	Not surveyed	Hillman Smith et al. 2003b
2000	118	±64	Not surveyed	Smith and Hillman Smith 2000
2002	62	±13	Not surveyed	Hillman Smith et al. 2003b
2003	62	±75	Not surveyed	Hillman Smith et al. 2003b
2004	185	±152	Not surveyed	Hillman Smith et al. 2004
Year	Garamba NP (South)	SE	Reserves	Source
2005	48		Not surveyed	De Merode et al. 2005
2006	52		18	Emslie et al. 2006
2007	82		0	Amube et al. 2009
2012	11		11	African Parks & ICCN 2012
2014	27		15	African Parks & ICCN 2014
2017 ¹	22		12	African Parks & ICCN 2017
2017	31		14	M. D'haen, pers. obs.

1. Numbers shown are aerial survey figures to be consistent in methodology but it has to be noted that more accurate numbers through individual identifications using unique blotch patterns are available with 31 giraffe for GNP and 14 for the Hunting Reserves.
2. SE = Standard Error
3. DCS = Domaine des chasses

4. Problem Analysis

4.1. Threats

Below is a list of current and realistic potential threats facing giraffe in GNP as identified by ICCN, APN and stakeholders. Additionally, a table of threat risk level is also presented.

- 1. Transboundary poaching:** Even though transboundary poaching was the driving force in the dramatic decline of Garamba's giraffe from >350 in 1976 to current low population numbers, poaching has reduced markedly in the last decade with the last poaching activity reported in June 2016.
- 2. Local poaching:** Poaching by local communities is considered minimal due to the belief that the meat causes leprosy. However, this has changed in the last decade and greater understanding required to truly assess and understand this threat.
- 3. Habitat change/Climate change:** With megafauna populations decimated it can be expected that areas become more densely vegetated. This however is not considered a threat in GNP as it consists of vast open savannah where the limiting factor for giraffe is a lack of forage. A change in habitat in Garamba's case would most likely mean a shift of suitable giraffe habitat to a more open habitat, or vice versa to an expansion of suitable giraffe habitat. Climate change is difficult to assess as a threat as it is unknown how Garamba's climate will react and the impact on giraffe unknown.
- 4. Habitat loss:** It is important to monitor the expansion of community agricultural fields around the Park (<5km). No communities live inside the Park's boundaries and thus the fields are not considered a direct threat but the potential impact of local poaching may well be linked to increasing agricultural practices and associate habitat loss.
- 5. Disease:** Giraffe skin disease (GSD) has been observed to be more and more prevalent in giraffe populations in Africa, possibly a result of increased giraffe monitoring. Depending on the population and impacts of GSD, we are unsure if it influences their health. No GSD has yet been observed in Garamba's giraffe but has a potential threat if brought into the population through released animals for (re-) introduction programs by giraffe and/or other species. Additionally, other known or unknown diseases may impact giraffe depending on stress, climate change, etc.
- 6. Inbreeding:** Inbreeding due to a low genetic diversity is a potential threat to giraffe in the Park given the low population numbers but with healthy juveniles and normal age-class ratios there is no reason to accept it as an immediate threat.
- 7. Predation – adults:** Predation on adult giraffe is considered a low threat with no adults predated in the study period September 2016 – July 2017. Recently, no scars have been observed on giraffe's hindquarters, an indicator of predation attempt.

- 8. Predation – young:** Predation of young is considered one of the greatest potential threats to giraffe with 3 out of 8 (37.5%) juveniles born between September 2016 – July 2017 presumably killed by predation. Ongoing monitoring is critical.
- 9. Political instability:** Indirect consequences of political instability can cause rebels to return to Garamba’s surroundings. This is a potential high risk for giraffe populations as it would likely result in increased poaching.
- 10. Extinction – small population:** With low population numbers giraffe are vulnerable to extinction through even small population losses that can be human or non-human induced which would be buffered in larger populations.
- 11. Introduction of exotic giraffe:** Discussions have arisen regarding the introduction of wildlife from other African countries. However, it is unsure whether these include giraffe and where they would come from or be released. If the proposal is for GNP, this is a high risk for the Park’s Kordofan giraffe as they are different to many other giraffe from across the continent.

Table 2: Threat analysis by risk level of giraffe in and around Garamba National Park, DRC.

Threat	GNP	Hunting Reserves
Transboundary poaching	Medium	-
Local poaching	-	-
Habitat change/ Climate change	-	-
Habitat loss	-	Low
Disease	-	-
Inbreeding	Low	Low
Predation – adults	Low	Low
Predation – young	Medium	High
Political instability	Low	Low
Extinction – small population	Medium	Medium
Introduction of exotic giraffe	Low	Low

5. Vision

Viable populations of giraffe thrive throughout their current and future range in healthy and secure ecosystems acting as a flagship species for the Democratic Republic of Congo, coexisting with human populations, contributing to livelihoods and national development, and retaining cultural values for present and future generations.

6. Goals

- 1.** Increased population of giraffe in Garamba National Park and surrounding Hunting Reserves to 60 individuals by 2020.
- 2.** Effective protection of giraffe populations within Garamba National Park and surrounding Hunting Reserves.
- 3.** Promotion of giraffe as a flagship-species in local communities surrounding Garamba National Park as well as on a national level.
- 4.** Adequate management including the monitoring of population dynamics of giraffe within Garamba National Park and surrounding Hunting Reserves

7. Strategic Objectives, Indicator, Rationale and Project Activities

7.1. Strategic Objective 1. Enhance conservation monitoring and research efforts on giraffe population dynamics and their threats

7.1.1. Indicator: Giraffe population dynamics better understood and importance of all threats identified

7.1.2. Rationale

Decisions on giraffe conservation and management in DRC need to be based on reliable information and robust analyses in order to be effective. Greater information is needed on giraffe population size and trend, demographic parameters, ranging patterns, habitat use, genetics and importantly, threats.

#	Action	Indicators	Responsible	Timeframe
1.1.	Employ a dedicated giraffe project coordinator in GNP to oversee the NGCSAP	Giraffe project coordinator employed	GNP, HR department	Spread out over 2018, 2019 and 2020
1.2.	Undertake 1-2 dedicated giraffe monitoring flights per week	Regular dedicated giraffe flights conducted	GNP, R&M, LE	Ongoing
1.3.	Maintain individual identification giraffe database	Giraffe identification database maintained	GNP, R&M	Ongoing
1.4.	Report monthly on giraffe observations, IDs, births, deaths and threats	Giraffe research criterion included in GNP's monthly report	GNP, R&M	Ongoing
1.5.	Develop and implement appropriate flight protocol ensuring equipment is available	Flight protocol developed, equipment used and implemented	GNP, R&M, LE	Ongoing
1.6.	Assess and understand the importance of each threat (predation, trans-boundary poaching, etc.)	Importance of all threats identified and better understood	GNP, R&M	Ongoing
1.7.	Investigate the presumed most important threat – predation, through assessing scars on giraffe hindquarter method	Understanding the importance of predation by lion	GNP, R&M	Ongoing
1.8.	Assess the possibility of constructing a giraffe enclosure to increase breeding success (financial plan, risk plan, outcomes)	Assessment of giraffe enclosure undertaken and shared with decision makers	GNP, R&M, Special projects and Financial department	2018, 2019, 2020
1.9.	Assess the possibility of translocating fragmented	Assessment of giraffe translocation undertaken	GNP, R&M, Special projects	2018, 2019, 2020

	satellite giraffe from the north to the south of GNP	and shared with decision makers	and Financial department	
1.10	Monitoring using GPS satellite ossi-units	3 giraffe fitted with ossi-unit, monitored and data analysed	GNP, R&M, advice from GCF	2018, 2019, 2020

7.2. Objective 2: Increase and improve implementation of law enforcement and security in key giraffe habitats

7.2.1. Indicator: Enhanced law enforcement and security in key habitats for giraffe in Garamba National Park

7.2.2. Rationale

#	Action	Indicators	Responsible	Timeframe
2.1.	Maintain law enforcement efforts with current and/or increasing numbers of rangers	Law enforcement efforts maintained and/or increased	GNP, LE	Ongoing
2.2.	Undertake dedicated giraffe patrols in key habitats to increase anti-poaching protection	Regular dedicated giraffe patrols conducted	GNP, LE	Ongoing
2.3.	Training of rangers on basic giraffe data collection and monitoring	Rangers understand importance of giraffe monitoring and research and undertake data collection	GNP, R&M in cooperation with LE	2019
2.4.	Establish a permanent security outpost in the key giraffe area	Security outpost in key giraffe area established	GNP, Special projects and LE	2018
2.5.	Purchase radio equipment and a new repeater for the Gangala na Bodio station	Good communication system established at Gangala na Bodio station	GNP, Special projects	2018
2.6.	Re-open the old road between Nagero and Gangala Na Bodio Center to increase presence in the	Old road re-opened between Nagero	GNP, Special projects	2018, 2019

	area and improve accessibility	and Gangala Na Bodio Center		
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Even though poaching has been reduced in recent years, local belief that giraffe meat causes leprosy is fading and trans-boundary poachers are an imminent threat.

7.3. Objective 3: Increase capacity building for staff of research and monitoring department in Garamba National Park

7.3.1. Indicator: Staff of R&M department understand the need of giraffe research and monitoring, are able to collect the necessary data and can independently analyse

7.3.2. Rationale

Research and long-term monitoring are invaluable for conservation of giraffe in GNP and needs therefore to be ensured. With APN as a private partner in the management of GNP its future is not guaranteed and expertise needs to be handed over to a national team of experts.

#	Action	Indicators	Responsible	Timeframe
3.1.	Train all R&M staff in field data collection	Local staff understand what kind of data needs to be collected and how to collect it	GNP, R&M	Ongoing
3.2.	Improve computer data storage and processing skills of R&M staff in Excel, Google Earth, QGIS	Data storage is organised and easily accessible	GNP, R&M	Ongoing
3.3.	Training of staff in independent analyses	Staff can carry out analyses independently	GNP, R&M	Ongoing
3.4.	Identify and train a competent DRC national with the long-term goal of coordinating the giraffe (and other) program	Person identified and in place	GNP, R&M	Ongoing

7.4. Objective 4: Increase awareness and education about giraffe with local communities and at a national level in DRC

7.4.1. Indicator: Local communities and public support for giraffe conservation and its conservation status are increased in DRC

7.4.2. Rationale

Communities living around GNP and adjacent Hunting Areas often depend in part on natural resources and their livestock may share the same rangelands. Gaining the active support of communities and minimising conflicts in and around GNP are important aspects of a conservation programme. Additionally, increasing the profile of Kordofan giraffe in DRC and the importance of saving the last population will hopefully increase awareness and support.

#	Action	Indicators	Responsible	Timeframe
4.1.	Include giraffe conservation and their importance in the community development programs and outreach/GNP environmental education programme	Giraffe conservation is included in community development programs	GNP, R&M and DDD/CoCo	Ongoing
4.2.	Invite schoolchildren to visit the Park around key environmental awareness days – World Environment Day, World Giraffe Day, etc.	Schoolchildren of nearby communities have a direct giraffe experience and are involved in its conservation	GNP, R&M and DDD/CoCo	Ongoing
4.3.	Invite local tourists to lodge in camp Dungu and visit the park	Visitors are brought closer to giraffe	GNP, R&M and DDD/CoCo	Ongoing
4.4.	Promote World Giraffe Day (21 June) annually on GNP's social media and local and national media	GNP's giraffe efforts are brought into the spotlight	GNP, R&M, DDD/CoCo	Ongoing
4.5.	Assess and address any current local cultural threats to giraffe (i.e. tails as status symbol)	Local and cultural threats are identified	GNP, R&M and DDD/CoCo	2019
4.6.	Promote community livelihood programs neighbouring GNP (tourism, other)	GNP giraffe efforts are brought into the spotlight as well as people who get involved with giraffe conservation	GNP, R&M and DDD/CoCo	Ongoing

8. Stakeholder Overview

Below is a brief overview of the key stakeholders and their role in the conservation and management of giraffe in GNP.

The two most important partners in GNP's giraffe day-to-day on the ground conservation by securing key areas and implementation of actions, as well as implementing strategic plan, are ICCN and APN. With GNP being a public-private partnership federal laws are followed up through the public partner, ICCN. Additionally, APN, the private partner, brings in international expertise and supports the Park by increasing its financial means. Together, both parties take up the role and responsibility to manage GNP and have signed a ten-year contract from January 2016 onwards with the possibility of extension.

The management of giraffe in GNP by ICCN and APN is supported by various parties aiding through a strategic or supportive role while others, being local communities, share their territories with giraffe and are therefore important stakeholders on the ground. The Czech University of Life Sciences, veterinarians and GCF have a strategic role by assisting the management with technical advice and/or additional financial support. Finally, the European Union, World Bank and USAID, are important donor stakeholders through their financial support to GNP.

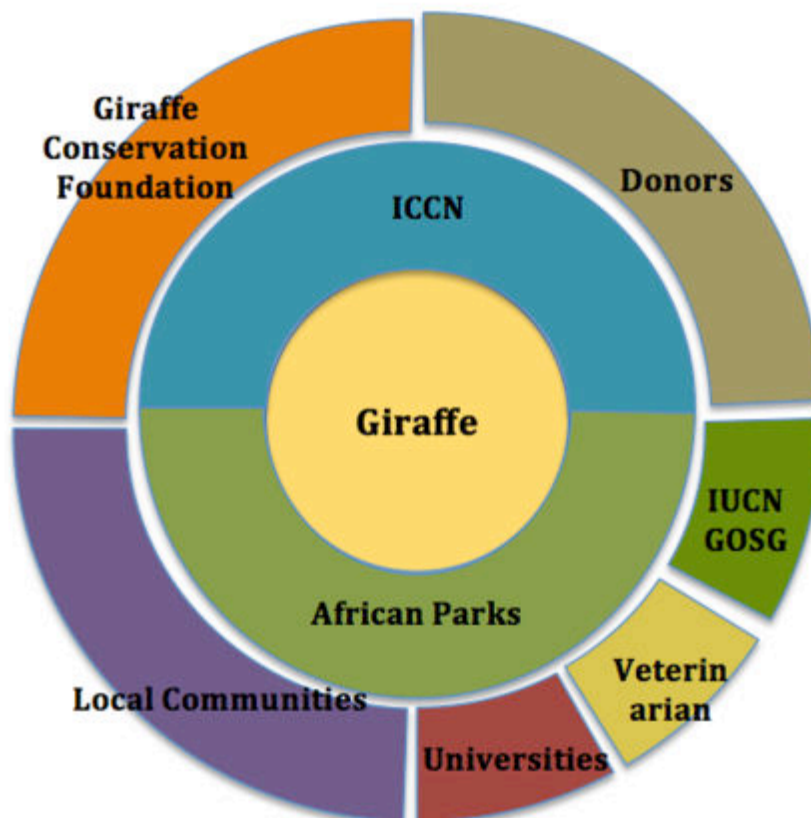


Figure 2: Infographic on key stakeholders involved in conservation of giraffe in Garamba National Park, DRC.

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