Country Profile

The Republic of Mali

Giraffe Conservation Status Report

February 2022

General statistics

Size of country: 1,240,000 km²

Size of protected areas / percentage protected area coverage: 3.7%

Species and subspecies

In 2016 the International Union for the Conservation of Nature (IUCN) completed the first detailed assessment of the conservation status of giraffe, revealing that their numbers are in peril. This was further emphasised when the majority of the IUCN recognised subspecies where assessed in 2018 – some as *Critically Endangered*. While this update further confirms the real threat to one of Africa's most charismatic megafauna, it also highlights a rather confusing aspect of giraffe conservation: how many species/subspecies of giraffe are there? The IUCN currently recognises one species (*Giraffa camelopardalis*) and nine subspecies of giraffe (Muller *et al*. 2018) historically based on outdated assessments of their morphological features and geographic ranges. The subspecies are thus divided: Angolan giraffe *(G. c. angolensis),* Kordofan giraffe *(G. c. antiquorum),* Masai giraffe (*G. c. tippelskirchi*), Nubian giraffe *(G. c. camelopardalis),* reticulated giraffe *(G. c. reticulata),* Rothschild's giraffe *(G. c. rothschildi),* South African giraffe (*G. c. giraffa),* Thornicroft's giraffe (*G. c. thornicrofti*) and West African giraffe *(G. c. peralta).*

However, over the past decade GCF together with their partner Senckenberg Biodiversity and Climate Research Centre (BiK-F) have performed the first-ever comprehensive DNA sampling and analysis (genomic, nuclear and mitochondrial) from all major natural populations of giraffe throughout their range in Africa. As a result, an update to the traditional taxonomy now exists. This study revealed that there are four distinct species of giraffe and likely five subspecies (Fennessy *et al.* 2016; Winter *et al.* 2018; Coimbra *et al.* 2021). The four species are Masai giraffe (*G. tippelskirchi*), northern giraffe (*G. camelopardalis*), reticulated giraffe (*G. reticulata*) and southern giraffe (*G. giraffa*). Nubian giraffe (*G. c. camelopardalis*), Kordofan giraffe (*G. c. antiquorum*), West African giraffe (*G. c. peralta*) are the three subspecies of the northern giraffe, while Angolan giraffe (*G. g. angolensis*) and South African giraffe (*G. g. giraffa*) fall under the southern giraffe. Rothschild's giraffe is genetically identical to the Nubian giraffe, and thus subsumed into it. Similarly, the Luangwa giraffe (*G. t. thornicrofti*) is genetically similar to the Masai giraffe (*G. t. tippelskirchi*), however, they are now proposed as two separate subspecies (Winter *et al.* 2018; Coimbra *et al.* 2021). Based on this research, GCF in all publications refers to the updated giraffe taxonomy of four species.

The following species and subspecies of giraffe are found in Mali:

Species: Northern giraffe (*Giraffa camelopardalis*)

Subspecies: West African giraffe *(Giraffa camelopardalis peralta)*

Conservation Status

IUCN Red List (IUCN 2018):

Giraffa camelopardalis (as a species, old taxonomy) – Vulnerable (Muller *et al.* 2018)

Giraffa camelopardalis peralta – Vulnerable (Fennessy *et al.* 2018)

In the Republic of Mali:

Extinct

Issues/threats

The Republic of Mali (referred to as Mali in this report) is a landlocked country in West Africa. Historically, West African giraffe (*Giraffa camelopardalis peralta*)[1] occurred widely in the central and southern parts of Mali (Sayer 1977; East 1999). The distribution and range of West African giraffe have drastically decreased due to anthropogenic pressure (Hasannin *et al.* 2007; Le Pendu 1999; Ciofolo 1995; Dagg & Foster 1976). The main drivers of the decline include human population growth, civil unrest, illegal hunting (poaching) and habitat alteration, destruction and fragmentation (Hasannin *et al.* 2007; Niandou *et al.* 2000; Ciofolo & Le Pendu 1998; Ciofolo 1995; Happold 1969). The introduction of firearms resulted in extensive illegal hunting of giraffe for meat and hides, while the extension of agriculture, deforestation and infrastructure development caused severe loss of habitat (East 1999; Le Pendu 1999; Ciofolo & Le Pendu 1998; Ciofolo 1995, Mauny 1957). Increasing aridity and a series of intense droughts also contributed to the dramatic decline of West African giraffe (Le Pendu 1999; Dagg & Foster 1976).

The mammalian fauna of Mali is poorly understood (Sayer 1977; Meinig 2000), however, giraffe are extinct in the country (Fennessy *et al.* 2018; Fennessy & Brown 2010). The last surviving populations of West African giraffe occur in the neighbouring Niger, where they mainly persist in a densely populated, unprotected region that is under severe anthropogenic pressure (Brown *et al.* 2021; Coimbra *et al.* 2021; Le Pendu 1999). With increasing giraffe migrations (and forays), a progressive saturation of the giraffe core range in Niger is suspected to result (Fennessy *et al.* 2018). As giraffe seek new areas, they are likely to venture permanently into Mali. While Mali is part of their historical range, giraffe would likely be more vulnerable to illegal hunting there (Le Pendu 1999).

Estimate population abundance and trends

Historic

The historically reported range of West African giraffe varies from being almost non-existent to widely spread throughout the continent's north-west (Fennessy *et al.* 2018; Fennessy 2008). According to Mauny (1957) giraffe ranged across the major part of North and West Africa, now covered by the Sahara Desert, during the Palaeolithic period. According to Dagg & Foster (1976), the former distribution of West African giraffe included most West and Central Africa countries, including Benin, Burkina Faso, Ghana, Guinea, Mali, Mauritania, Niger, Nigeria, Senegal, Togo, Cameroon, the Central African Republic and Chad. However, genetic studies (Coimbra *et al.* 2021; Hassanin *et al.* 2007) concluded that the giraffe of West and Central

[1] Although East (1999) referred to *G. c. peralta and G. c. antiquorum* collectively as western giraffe, *G. c. peralta* is now assumed to be West African giraffe as referred to throughout this document.

Africa belong to two different (sub)species, *G. c. peralta* and *G. c. antiquorum* respectively. The latter encompassed the historical and current populations of Cameroon, Chad, Central African Republic and Democratic Republic of Congo. Hassanin *et al.* (2007) suggested that the ancestor of the West African giraffe dispersed from East to North Africa and thereafter migrated to their current Sahelian distribution in West Africa some 6,000 years ago, in response to the evolving of the Sahara Desert. Most recently, a new giraffe subspecies was proposed to have occurred historically in Senegal, however, further research is required as current data is limited (Petzold *et al.* 2020)

Historically, West African giraffe occurred widely across much of Mali, including the Sahel zone, northern savannah woodlands and southern guinea savanna zone (Sayer 1977; East 1999). While giraffe were still present throughout West Africa including Mali, Gambia, Niger, Nigeria, Mauritania and Senegal by the end of the nineteenth century, a substantial reduction in their distribution was reported by the beginning of the twentieth century. This reduction can likely be attributed to the proliferation of firearms from the 17th century onwards and the impact of rinderpest in the late 19th century (Leroy *et al.* 2009; Ciofolo 1995; Sayer 1977; Dagg & Foster 1976; Sidney 1965; Mauny 1957).

According to Ciofolo & Le Pendu (1998), large scale disappearance of West African giraffe was evident by the 1950s and coincided with increasing human population and livestock numbers, agricultural expansion, habitat loss, illegal hunting, and disease (Sayer 1977). Happold (1978) reported that giraffe still roamed from Gaya in Nigeria to Mali in the 1960s, with the highest population density occurring near Ayorou in Niger, close to the Malian border. By the mid-1960s, last numbers of West African giraffe were reportedly only found in the Mtnaka district in Mali and around Aderbissinat in central Niger (ZSL 1965), while other reports state that giraffe remained widespread throughout central and southern conservation areas in Mali (Sayer 1977). At the same time, giraffe still occurred in small numbers in Adrar des Iforhas in the northern Sahel zone, northeast of Gao, however, soon after they were no longer present (Sayer 1977).

In 1969, a few giraffe still survived in Mali's Ansong-Ménaka Partial Faunal Reserve on the Niger border in the east and in Baoulé National Park in the west (Ciofolo 1995; Happold 1969). By the late 1980s, they had disappeared completely from Baoulé National Park and other areas in the west (East 1999).

The 'Reserve des Girafes', an informal and temporary wildlife area of 1,2 million ha along the Niger border southeast of Gao, was well known for its giraffe population in the mid 1970s, when these 'tame' populations could readily be spotted from the road between Gao and Niamey (Sayer 1977).

There are mixed reports on the more recent presence of giraffe in the Ansong-Ménaka Partial Faunal Reserve. One report suggests the last giraffe was killed in 1987 (World Bank 1993), while East (1999) reported a remaining giraffe population of ten animals in Mali as late as 1996. By then, giraffe in the reserve were severely threatened by incursions of large numbers of livestock and encroachment of settlements (East 1999). Although the Malian authorities took active steps in the early 1990s to protect the reserve's giraffe population, including posting a dedicated ranger to accompany the giraffe in an effort to discourage poachers (East 1999), habitat degradation and destruction prevailed.

Le Pendu (1999) made reference to two sub-adult male giraffe crossing into Niger from Mali in 1997 and suggested that they probably originated in a relic group of five individuals in the Natural Reserve of Monzonga. Five giraffe travelled from Sansanne Houssa to Fandou (Niger) in the same year and Le Pendu (1999) suggested that this group could have come from Mali and/or Niger (Le Pendu 1999).

Current

The small population of West African giraffe in the Ansong-Ménaka Partial Faunal Reserve is now extinct and by extension no giraffe currently exist in Mali (Fennessy *et al*. 2018; Fennessy & Brown 2010).

Acknowledgements

This updated Country Profile was financially supported by the Giraffe Conservation Foundation and its supporters.

References

Ciofolo, I. 1995. West Africa's last giraffes: the conflict between development and conservation. *Journal of Tropical Ecology* **11**: 577-588.

Ciofolo, I. & Le Pendu Y. 1998. *Giraffes of Niger: An ethologic analysis to the local development.* Ministry for the Plan, Ministry for Hydraulics and the Environment; European Union (EU) and Organization Neerlandaise of Developpement (SNV), Republic of Niger. Project N˚ EOF/ 9501 B 7 6200.

Coimbra, R.T.F., Winter, S., Kumr, V., Koepfli, K-P., Gooley, R.M. Dobrynin, Fennessy, J. & Janke, A. 2021. Whole-genome analysis of giraffe supports four distinct species. *Current Biology* **31(13)**: 2929-2938.

Dagg, A.I. 1962. *The distribution of the giraffe in Africa*. School of Graduate Studies, University of Waterloo, Waterloo, Ontario, Canada.

Dagg, A.I. & Foster, J.B. 1976. *The Giraffe: Its Biology, Behavior, and Ecology.* Van Nostrand Reinhold, New York, USA.

East, R. 1999. *African Antelope Database 1998.* IUCN/SSC Antelope Specialist Group. IUCN, Gland, Switserland and Cambridge, UK.

Fennessy, J. 2008. An overview of *Giraffa camelopardalis* taxonomy, distribution and conservation status, with a Namibian comparative and focus on the Kunene Region. *Journal NWG* **56**: 65-81.

Fennessy, J. & Brown, D. 2008. *Giraffa camelopardalis ssp. peralta*. In: IUCN 2013. IUCN Red List of Threatened Species. Version 2013.2. <www.iucnredlist.org>. Downloaded on 31 January 2014.

Fennessy, J. & Brown, D. 2010. *Giraffa camelopardalis*. In: IUCN 2013. IUCN Red List of Threatened Species. Version 2013.1. <www.iucnredlist.org>. Downloaded on 23 September 2013.

Fennessy, J., Marais, A. & Tutchings, A. 2018. *Giraffa camelopardalis ssp. peralta*. The IUCN Red List of Threatened Species 2018: e.T136913A51140803. http://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T136913A51140803.en. Downloaded on 28 July 2019.

Fennessy, J., Bidon, T., Reuss, F., Kumar, V., Elkan, P., Nilsson, M.A., Vamberger, M. Fritz, U. & Janke, A. 2016. From one to four species: multi-locus analyses reveal hidden genetic diversity in giraffe. *Current Biology* **26**: 2543-2549

Happold, D.C.D. 1969. The present distribution and status of the giraffe in West Africa. *Mammalia* **33**: 516-521.

Happold, D.C.D. 1978. Giraffe south of the Niger-Benue River system. *Sonderdruck Z Saugetierkunde* **43**: 239-242.

Hassanin, A., Ropiquet A., Gourmand, A.L., Chardonnet, B. & Rigoulet, J. 2007. Mitochondrial DNA variability in *Giraffa camelopardalis*: consequences for taxonomy, phylogeography and conservation of giraffes in West and central Africa. *Comptes Rendus Biologies* **330**: 265-274.

IUCN 2012. *The IUCN Red List of Threatened Species. Version 2012.1*. http://www.iucnredlist.org (Downloaded on 24 August 2012).

Leroy, R., de Visscher, M-N., Halidou, O. & Boureima, A. 2009. The last African white giraffes live in farmers' fields. *Biodiversity Conservation* **18**: 2663-2677.

Le Pendu, Y. & Ciofolio, I. 1999. Seasonal movement of giraffes in Niger. *Journal of Tropical Ecology* **15**: 341-353.

Mauny, R. 1957. Ré partition de la grande faune éthiopienne du Nord-Ouest africain, du Paléolithique a' nos jours. *Bulletin IFAN, Dakar* XVII (A): 246-278.

Meinig, H. 2000. Notes on the mammal fauna of the southern part of the Republic of Mali, West Africa. *Bonn Zoological Beiträge* **49**: 101-104.

Muller, Z., Bercovitch, F., Brand, R., Brown, D., Brown, M., Bolger, D., Carter, K., Deacon, F., Doherty, J.B., Fennessy, J., Fennessy, S., Hussein, A.A., Lee, D., Marais, A., Strauss, M., Tutchings, A. & Wube, T. 2018. *Giraffa camelopardalis* (ammended version of 2016 assessment). The IUCN Red List of Threatened Species 2018: e.T9194A136266699. https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T9194A136266699.en. Downloaded on 28 July 2022.

Petzold, A., Magnant, A-S., Edderai, D., Chardonnet, B., Rigoulet, J., Sanit-Jalme, M. & Hassanin, A. 2020. First insights into past biodiversity of giraffesbased on mitochondrial sequences from museum specimens. *European J. Taxonomy* **703**: 1-33

Sayer, J.A. 1977. Conservation of large mammals in the Republic of Mali. *Biol. Conserv*. **12**: 245-263.

Sidney, J. 1965. The past and present distribution of some African ungulates. *Transactions of the Zoological Society of London* **30**: 1-397.

The World Bank. 1993. *Ecologically Sensitive Sites in Africa Volume V: Sahel*. World Conservation Monitoring Centre. Cambridge, UK.

Winter, S., Fennessy, J. & Janke, A. 2018. Limited introgression supports division of giraffe into four species. *Ecol Evol.* **8**: 10156-10165.

Zoological Society of London (ZSL). 1965. Part 5: Order: Artiodactyla, Suborder: Ruminantia, Infraorder: Pecora, Family: Giraffidae, Genus: Giraffa. *The Transactions of the Zoological Society of London* **30**(5): 139-168.

Citation

Ferguson, S., Marais, A.J., Fennessy, S. & Fennessy, J. 2022. *Country Profile: A rapid assessment of the giraffe conservation status in the Republic of Mali.* Giraffe Conservation Foundation, Windhoek, Namibia.

Map


Algeria
Mauritania
Kidal
Tombouctou
Gao
M a l i
Gouma Partial WR
Ansongo-Menaka Partial WR
Mopti
Kayes
Senegal
Boucle du Baoule BR
Ségou
Kita
Koulikoro
Bamako
Wongo NP
Hunting Area
Sounsan WR
Koutiala
Rivers
Protected areas
Guinea
Sikasso
Burkina Faso
Niger
Ghana
Benin