Country Profile

Republic of Malawi

Giraffe Conservation Status Report

May 2023

General statistics

Size of country: 118,480 km²

Size of protected areas / percentage protected area coverage: 15%

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 (*Giraffa* spp.), revealing that their numbers are in peril. This was further emphasised when most of the IUCN recognised subspecies were 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 another key threat which is impacting their conservation: how many (sub)species of giraffe are there? And as such, are we undervaluing their conservation status? The IUCN recognition of one species (*G. camelopardalis*) and nine subspecies of giraffe (Muller *et al*. 2018) is outdated, historically based on limited and inaccurate scientific evidence of their morphology and geographic range. They recognize the following subspecies: 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 last one and a half decades, GCF together with their primary partner Senckenberg Biodiversity and Climate Research Centre (BiK-F) and others, including Smithsonian Conservation Biology Institute, various African Governments, and conservation partners, performed the first-ever comprehensive DNA sampling and analysis (genomic, nuclear, and mitochondrial) of giraffe from all major natural populations throughout their range in Africa. This long-term study has revealed four distinct species of giraffe and seven subspecies (Coimbra *et al.* 2021; Winter *et al.* 2018; Fennessy *et al.* 2016). 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*) and 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*) are subspecies of the southern giraffe. Masai giraffe now consist of two subspecies – the Masai giraffe (*G. t. tippelskirchi*) and the Luangwa (formerly Thornicroft's) giraffe (*G. t. thornicrofti*). Rothschild's giraffe is genetically and morphologically identical to the Nubian giraffe, and thus subsumed into it. In all programmes and publications GCF refers to the updated giraffe taxonomy of four species.

The following species and subspecies of giraffe occur in Malawi:

Species: Southern giraffe (*Giraffa giraffa*)

Subspecies: South African giraffe (*Giraffa giraffa giraffa)*

Conservation Status

IUCN Red List (IUCN 2018):

Giraffa camelopardalis (as one species, outdated taxonomy) – Vulnerable (Muller *et al.* 2018)

Giraffa giraffa – Not Assessed

Giraffa giraffa giraffa – Not Assessed

In the Republic of Malawi:

The Game Act (No. 26 of 1953) is the main act for the preservation, control, and trade of game animals in the Republic of Malawi. Giraffe are not specifically protected under this act.

Issues/threats

The Republic of Malawi (referred to as Malawi in this report) is one of the least urbanised and poorest countries in Africa (Kamlongera 2011; MFCR 2010) with economic woes intensified by the COVID-19 pandemic (Baulch *et al*. 2020). Dominated by agriculture and associated services, the structure of the economy has not changed appreciably since 1994 and persistent structural factors impede economic growth (BTI 2022). Weak human resources act as a hindrance to productivity growth, and the institutional and physical infrastructure (electricity, water, and telecommunications) is poor (BTI 2022). Above all, exposure to extreme weather events (floods and droughts) caused by climate change is serious and a drain on public resources, leading to domestic borrowing to balance budgets and an increasing debt burden (BTI 2022). The greatest threats to biodiversity in Malawi include habitat degradation, fragmentation, and destruction due to unsustainable land use practices (CHM 2013; Johnson *et al.* 2012; MFCR 2010). Malawi's deforestation rate is ranked fourth in the world and first in the Southern African Development Community (SADC) primarily a result of charcoal burning, local firewood extraction, and agricultural encroachment (BTI 2022). Furthermore, the cumulative effect of agricultural expansion, urbanisation, infrastructure development, mining and an increase in human settlements has contributed to major land conversion and destruction of natural habitat (CHM 2013; Johnson *et al.* 2012; MFCR 2010).

Due to their low economic base, Malawians depend daily on natural resources for energy (fuel wood), food, construction material, medicine and fodder, forcing them to trade-off long-term sustainable resource use for short-term consumption (MFCR 2010). Such an overdependence has contributed to the local extermination of some widely used natural resources (MFCR 2010). Inadequate enforcement of environmental policies further contributes to the indiscriminate exploitation of natural resources in the country (MFCR 2010). Over-harvesting and over-exploitation of natural resources the ever-increasing human population has contributed to reducing wildlife habitat and wildlife numbers, especially in the southern part of the country (Johnson *et al.* 2012; MFCR 2010; Munthali & Mkanda 2002). Specifically, illegal hunting for meat, skins, and horns has directly impacted the country's wildlife (Chilembwe 2019; CHM 2013; Johnson *et al*. 2012; Munthali & Mkanda 2002).

Despite the very small giraffe number in the country, so far they do not appear to be adversely affected by the abovementioned threats. However, the wildlife poaching threat continues to grow and although giraffe are unlikely to be a targeted species, gin traps and snares could still be detrimental to the small giraffe population in Malawi (R. Miles pers. comm.).

The previous assumption that more than one giraffe (sub)species was introduced into Malawi (Briggs 2013; J. Mwalukomo pers. comm.) was proven incorrect by recent genetic and work undertaken by GCF and Senckenberg BiK-F, which confirmed that only South African giraffe (*G. g. giraffa*) were introduced to Malawi and most came from the same source population in Zimbabwe in 1993 (GCF and African Parks 2018).

Neonate mortality of giraffe is reported as very high in Malawi's Nyala Game Park (GP) and it is suggested that this is due to genetic inbreeding and reduced genetic diversity (J. Mwalukomo pers. comm.). Closely related

individuals that have continued to mate since their introduction two decades ago appear to produce weak and non-disease resistant offspring, and over ten neonate mortalities were reported in the park so far (J. Mwalukomo pers. comm.). A targeted genetic assessment is recommended.

Climate change, and the subsequent extreme weather patterns such as the recent drought and flooding, are a threat to Malawi's giraffe populations in the relatively small, fenced reserves with limited higher ground and water resources. In 2021, Majete Wildlife Reserve (WR) experienced a severe drought which resulted in a substantial decrease in browse availability with many herbivores dying from starvation. It was during this extreme drought that one of the 2021 translocated giraffe disappeared and is assumed dead, however, the cause of death is unknown. Very shortly after this drought, Majete WR was hit by two cyclones causing widespread flash flooding. While no giraffe appeared to be adversely affected, some animals were washed away by the floods. In 2019, six African savanna elephant drowned in floods that were caused by yet another cyclone. Climate change could gradually increase the frequency and severity of such flood and drought events in Malawi (Brown 2011; Chidanti-Malunga 2011; R. Miles pers. comm.). A recent Emissions Gap Report by the United Nations Environment Program (UNEP) Climate Centre predicts that the earth will be warmer by about 1.5°C by 2030 (UNEP, 2021) with temperatures in Africa predicted to increase by 1.2°C in the next two decades (Almazroui *et al*. 2020).

Estimate population abundance and trends

Historic

The historical occurrence of giraffe in Malawi is uncertain due to limited records, however, it is generally assumed that giraffe have historically occurred in different areas in the country despite contrasting views by some authors (Dagg 1962; East 1999; Briggs 2013). A documented historical record exists of one giraffe, assumed to have been a Luangwa giraffe, that strayed over the Zambian border into Malawi's Karongo Destrict before it was killed by local people (Briggs 2013).

In 1993, five South African giraffe were translocated from Imire Park in Zimbabwe to the privately owned Nyala GP in Malawi's Southern Region (B. Carruthers pers. comm.; J. Mwalukomo pers. comm).

According to Briggs (2013), an unknown number of Luangwa giraffe from the Luangwa Valley in Zambia were introduced to Nyala GP in the early 2000s. However, this could not be confirmed by the current park staff. In 2007, one male and one female giraffe were moved from Nyala GP to Chimwenya GP, a small private reserve in Malawi's Southern Region (G. Gange-Harris pers. comm.). Genetic testing has confirmed that all giraffe in Nyala GP, and Malawi in general, are South African giraffe (GCF and African Parks 2018).

During a game count of Nyala GP in 2008, a total of 21 giraffe were recorded, while 25 giraffe were counted in 2009 (J. Mwalukomo pers. comm.). Four giraffe died during a capture operation, possibly due to intense heat and stress (J. Mwalukomo pers. comm.). Follow-up game counts in Nyala GP recorded 16 giraffe in 2010, 14 in 2011 and 13 individuals in 2012 (J. Mwalukomo pers. comm).

Kuti WR received four subadult giraffe from Nyala GP in 2002/3. Giraffe were recommended as a suitable species for the reserve by the Department of National Parks and Wildlife (DNPW) along with other antelope species that had gone through a successful breeding programme (L. Webb pers. comm.). Two giraffe died from tannin poisoning caused by overfeeding on *Vachellia/Senegalia* trees during a drought. This diagnosis was confirmed during a necropsy. The remaining cow gave birth to a female calf in 2014, however, the adult bull died from a snakebite in the same year, followed by the cow in early 2015 due to unknown causes (L. Webb pers. comm.).

Current

Currently, there are only a few giraffe remaining in Malawi (B. Carruthers pers. comm.; L. Webb pers. comm.). Both Kuti WR and Chimwenya GP are home to one adult female each, after a bull died in 20219 in the latter GP

(G. Gange-Harris pers. comm.). In 2018, four South African giraffe were introduced to Nyala GP from a private game reserve in South Africa (GCF and African Parks 2018). After the park flooded in January 2022, only six giraffe remain including only one female (B. Carruthers pers. comm.).

In November 2018, nine South African giraffe were introduced to Majete WR (GCF and African Parks 2018; Brown *et al*. 2021) and an additional four giraffe were moved from Nyala GP to bring the giraffe population to 13 individuals (GCF and African Parks 2018; Brown *et al*. 2021). In 2021, this population was bolstered by the introduction of nine additional giraffe from a private reserve in Hilton, South Africa, bringing the total population to 25 after the birth of two calves in the reserve. In 2023, it is estimated that there are 26 giraffe in Majete WR (C. Thomas pers. comm.). The total population in the country currently stands at 34 individuals, which giraffe occurring in Majete WR, Nyala GP, Kuti WR and Chimwenya GP (GCF and African Parks 2018, B. Carruthers pers. comm.; L. Webb pers. comm.).

Future Conservation Management

The following are proposed conservation management options for giraffe in Malawi:

- Continued understanding of giraffe (sub)speciation throughout the country;
- Undertake a detailed genetic study of giraffe in Nyala GP to assess the risk of inbreeding and associated risk of higher than average neonate mortalities;
- Continued support of conservation translocation operations;
- Facilitate meeting with key stakeholders to develop the countries first-ever National Giraffe Strategy and Action Plan for Malawi; and
- Support dedicated giraffe conservation, habitat protection, education, and awareness initiatives (government, NGO and academic).

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References

Almazroui, M., Saeed, F., Saeed, S., Nazrul Islam, M., Ismail, M., Klutse, N.A.B. & Siddiqui, M.H. 2020. Projected change in temperature and precipitation over Africa from CMIP6. *Earth Systems and Environment* **4**: 455-475.

Baulch, B., Botha, R. & Pauw, K. 2020. *Short-term impacts of COVID-19 on the Malawian economy: Initial results*. Intl Food Policy Res Inst.

Bertelsmann Transformation Index (BTI). 2022. Malawi Country Report. https://bti-project.org/en/reports/country-report/MWI (Accessed 6 March 2023).

Briggs, P. 2013. *Malawi.* Edition 6. Bradt Travel Guides Ltd, England.

Brown, D. 2011. Making the linkages between climate change adaptation and spatial planning in Malawi. *Environmental science & policy* **14(8):** 940-949.

Brown, M.B., Kulkarni, T., Ferguson, S., Fennessy, S., Muneza, A., Stabach, J.A., Fennessy, J. 2021.! Conservation Status of Giraffe: Evaluating Contemporary Distribution and Abundance with Evolving Taxonomic Perspectives. *Imperiled: The Encyclopedia of Conservation: 1–17*.

Biodiversity in Malawi. Malawi Clearing-House Mechanism, Convention in Biological Diversity http://www.chmmw.org/biodivmw.asp (Accessed 10 August 2013).

Chidanti-Malunga, J. 2011. Adaptive strategies to climate change in Southern Malawi. *Physics and Chemistry of the Earth, Parts A/B/C* **36 (14-15)**: 1043-1046.

Chilembwe, J.M. 2019. Nature tourism, wildlife resources and community-based conservation: The case study of Malawi. In *Natural Resources, Tourism and Community Livelihoods in Southern Africa.* pp. 26-37.

Coimbra, R.T., Winter, S., Kumar, V., Koepfli, K.P., Gooley, R.M., Dobrynin, P., 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.

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

Fennessy, J., Bidon, T., Reuss, F., Kumar, V., Elkan, P., Nilsson, M.A., Vamberger, M. Fritz, U. & Janke, A. 2016. Multi-locus analysis reveal four giraffe species instead of one. *Current Biology* **26:** 2543-2549.

Giraffe Conservation Foundation (GCF) & African Parks. 2018. *Operation Kadyamsonga: introduction of giraffe into Majete Wildlife Reserve, Malawi*.

Kamlongera, P.J. 2011. Making the poor 'poorer' or alleviating poverty? Artisanal mining livelihoods in rural Malawi. *Journal of International Development* ***23*****(8)**: 1128-1139.

MFCR. 2010. *Malawi Fourth Country Report to the Convention on Biological Diversity (CBD).* Environmental Affairs Department Ministry of Natural Resources, Energy and Environment, Malawi.

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.* The IUCN Red List of Threatened Species 2018: e.T9194A51140239. www.iucnredlist.org/details/9194/0 (Downloaded December 2022).

Munthali, S.M. & Mkanda, F.X. 2002. The plight of Malawi's wildlife: is trans-location of animals the solution?

Biodiversity & Conservation **11(5)**: 751-768.

Johnson, T., Menczer, K. & Mwanjela, G. 2012. *Malawi Environmental Threats and Opportunities Assessment*

(ETOA). United States Agency for International Development (USAID). Washington DC, USA.

United Nations Environment Programme (UNEP): Emissions Gap Report 2021: The Heat Is On – A World of Climate Promises Not Yet Delivered. Nairobi.

Winter, S., Fennessy, J. & Janke A. 2018. Limited introgression supports division of giraffe into four species. *Ecology and Evolution* **8**: 10156–10165. https://doi.org/10.1002/ece3.4490

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Map


Tanzania
Nyika NP
Vwaza Marsh WR
Nkhotakhota WR
Kusungu NP
Malawi
Lilongwe
Kuti WR
Zambia
Lake Malawi NP
Liwonde NP
Mozambique
Blantyre
Majete WR
Chirnwenya GP
Nyala GP
Mwabvi WR
South African giraffe
Protected areas
0
100
200 km