

Federal Democratic Republic of Ethiopia

Giraffe Conservation Status Report

July 2020

General statistics

Size of country: 1,127,127 km²

Size of protected areas / percentage protected area coverage: 18.5%

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 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 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one species (*Giraffa camelopardalis*) and nine subspecies of giraffe (Muller *et al.* 2016) historically based on outdated assessments of their morphological features and geographic ranges.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. tippeskirchi*), 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). The four species are Masai giraffe (*G. tippeskirchi*), 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, preliminary data suggests that the Thornicroft’s giraffe is genetically similar to the Masai giraffe, however, additional research is necessary to determine if they are genetically identical or should be considered a subspecies of Masai giraffe (Winter *et al.* 2018). Based on this research, GCF in all publications refers to the updated giraffe taxonomy of four species, while a taxonomy review by the IUCN is ongoing.

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

Species: Northern giraffe (*Giraffa camelopardalis*)

Reticulated giraffe (*Giraffa reticulata*)

Subspecies: Nubian giraffe (*Giraffa camelopardalis camelopardalis*)

Conservation Status

IUCN Red List (IUCN 2018):

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

Giraffa reticulata – Endangered (Muneza *et al.* 2018)

Giraffa camelopardalis camelopardalis – Critically Endangered (Wube *et al.* 2018)

In the Federal Democratic Republic of Ethiopia:

Under Article 24 of the Council Ministers Regulations No. 163/2008, a regulation provisioned for wildlife development, conservation and utilization, no person is allowed to hunt species listed in Table 10 of the regulations, which includes giraffe, except with a special hunting license acquired in accordance with Article 22 of the regulations.

Issues/threats

The Federal Democratic Republic of Ethiopia (referred to Ethiopia in this report) is one of the most densely populated countries in Africa with an estimated population of over 90 million people. Population pressure contributes significantly to environmental degradation in the country (Bekele & Hailemariam 2010). An estimated 95% of the original vegetation in the lowlands have been degraded as a result of human impact and overgrazing (Tessema 2017). Wildlife populations in Ethiopia have diminished over the past century in diversity, density and distribution as a result of a loss of habitat, illegal hunting, land clearing for farming and land degradation due to overgrazing (Tefera 2011).

Several of Ethiopia's protected areas exist on paper only, while others have declined in size or quality (Jacobs & Schloeder 2001; Hillman 1992, 1993). A nationwide lack of basic development and a diversion of finances towards conflict, contributed to the lack of success of Ethiopia's conservation programmes (Jacobs & Schloeder 2001). Movement and resettlement policies in the mid-1980s involved the forcible uprooting of hundreds of people from the north and their resettlement to the south, leaving people in many areas desperate for food and other resources (Jacobs & Schloeder 2001). Driven by these needs, rural populations sought to access more and more of the fertile lands inside protected areas for cultivation and livestock farming (Bekele & Hailemariam 2010; Duckworth 2002; Jacobs & Schloeder 2001). This has resulted in a great deal of anthropogenic disturbances and increased human-wildlife conflict within park boundaries (Fust 2009; Duckworth 2002). Former giraffe range has been heavily encroached by human settlement, making loss of habitat one of the greatest threats to giraffe populations in the country (Tefera 2011; Bekele & Hailemariam 2010; Jacobs & Schloeder 2001; East 1999). Restricted distribution and small size of populations make the species more likely to be susceptible to anthropogenic environmental degradation (Tefera 2011).

During the periods of civil unrest, machine guns were readily available through Ethiopia's black market and, as a result, hunting increased throughout the country (Jacobs & Schloeder 2001). Animals most vulnerable to hunting during this time included, among other species, giraffe (Jacobs & Schloeder 2001). The Ethiopian Wildlife Conservation Organisation (EWCO), established in 1965 as a semi-autonomous body responsible for wildlife conservation in Ethiopia, has reported ongoing illegal hunting of wildlife in Mago, Omo and Gambella National Parks – all of which have been important refuges for giraffe (Duckworth 2002; Jacobs & Schloeder 2001). Giraffe are primarily hunted with automatic rifles by tribe members living adjacent to park boundaries for their tail hair, which is used to make strings for the production of highly prized traditional necklaces, and for their meat (Wube 2013). Insufficient human and financial resources are made available for the management of parks (Wube 2013). Protected areas can thus no longer provide sufficient shelter from increasing human effects (Fust 2009).



The absence of a comprehensive land use plan for the country is a major cause for concern (Damtie 2010). Potential future threats include the development of a large-scale sugar development scheme by the Ethiopian Sugar Development Agency in the lower Omo Valley, which is envisioned to occupy 150,000 ha, including parts of Omo National Park, Tama Wildlife Reserve and Mago National Park (Enawgaw *et al.* 2011). Additionally, the Gibe III hydroelectric dam with an associated hydropower plant on the Omo River by the Ethiopian Electric Power Corporation was completed in 2016 and has the potential for major negative environmental implications (The Conversation 2017). Other potential threats include the mismanagement of environmental resources, i.e. continued expansion of agriculture and other human activities into natural land at local and commercial scale (Bekele & Hailemariam 2010).

Estimate population abundance and trends

Records of giraffe in Ethiopia are mostly anecdotal, often contradicting, and fraught with uncertainty, especially regarding the (sub)species concerned.

Historic

Giraffe formerly occurred in the western and southern lowlands of Ethiopia (East 1999; Yalden *et al.* 1984). As a large portion of the country is covered by high-altitude montane and afro-alpine ecosystems, the distribution of giraffe has probably never been much more extensive, being limited by the foothills of the central plateaux, by the dense forests of the southwest and by the Shebelle River (Fust 2009; Yalden *et al.* 1984). According to historical records, Nubian giraffe (*G. c. camelopardalis*) occurred in the western and south-western parts of the country and reticulated giraffe (*G. c. reticulata*) in the south (East 1999; Yalden *et al.* 1984; Blower 1968). The Omo River, which flows into the top end of Lake Turkana (formerly Lake Rudolf), was thought to act as an ecological barrier between the two (sub)species (Yalden *et al.* 1984; Blower 1968).

According to Dagg (1962), reticulated giraffe were abundant along the southern border of the country; occurred in eastern Ethiopia along the borders of the Danakil Desert and in the Ogaden Region. In contrast to East (1999), Yalden *et al.* (1984) and Blower (1968), Dagg (1962) did not refer to the occurrence of Nubian giraffe in the western and south-western parts of the country. Kingdon (1979) suggested that giraffe once extended throughout the Ogaden Region, and included the Danakil Desert as part of their range. However, Yalden *et al.* (1984) indicated that there was no firm evidence to support Kingdon's belief of giraffe incidence in the Danakil Desert; although Hunt (1951) suggested that local place names were indicative of the former presence of the species in northern Somalia. Blower (1968) noted the occurrence of giraffe in the southern Ogaden Region, but did not indicate the (sub)species concerned, and suggested that their continued survival there was doubtful by the late 1960s. Reticulated giraffe occurring in the Borana Province, in the south of Ethiopia, were also seriously depleted in numbers at the hands of heavily armed local populace and military by the late 1960s (Blower 1968).

A marked decrease in Ethiopia's giraffe populations, mostly as a result of overhunting, was evident by the early 1970s (East 1999). In 1971, the total number of giraffe in Ethiopia was estimated by the government at between 1,000 and 2,000 individuals (Dagg & Foster 1982). Bolton (1973) noted very few sightings from southern Ethiopia and implied a considerable decline in numbers in this area. Large (relative) numbers of giraffe were however observed in the Ubela area during 1973 (Duckworth 1974). Stephenson & Mizumo (1978) estimated giraffe populations in the Omo-Mago-Tama complex (consisting of Omo National Park, Mago National Park and the Tama Wildlife Reserve which links the two) at between 800-1'600 individuals. Yalden (1984) noted that nothing appeared to be known about population numbers of Nubian giraffe in the north western parts of the country.

Hillman (1993) suggested the prevalence of giraffe in Gambella, Mago and Omo National Parks, as well as in the Yabello Sanctuary, but did not give any indication of the (sub)species or estimated population sizes. An aerial census of the Omo-Mago-Tama complex in 1994 estimated the giraffe population at 200 individuals (Lamprey 1994). Of these, most were documented to occur in Omo National Park, but two herds were also seen in Mago National Park (Lamprey 1994). As a significant number of giraffe were observed on the Tama Steppe, outside of the surveyed protected areas, Lamprey (1994) suggested that the status of the giraffe population in the area might have been healthier than the census data indicated. However, less than 40



giraffe were counted during an aerial survey of Omo National Park in 1996 (Graham *et al.* 1996). East (1999) reported the disappearance of giraffe from Mago National Park and estimated a small and declining population of about 160 Nubian giraffe occurring in the Omo National Park and Tama Wildlife Reserve areas and possibly elsewhere in the country's west and southwest. An estimate of about 140 reticulated giraffe survived in the Borana Province and was reported by local inhabitants to occur in south western Ogaden (East 1999).

Current

Uncertainty remains regarding the current numbers of giraffe in the country as no official census has been recently undertaken. However, large herbivores have almost completely disappeared from Yabello Wildlife Sanctuary in the south of Ethiopia and it is assumed that giraffe have gone extinct there (Borghesio & Giannetti 2005). A few reticulated giraffe might have survived in the Ogaden Region bordering Somalia (Fust 2009); however, there is no recent evidence to substantiate this. There is also likely a small population of reticulated giraffe still in the Borana region, on the border with Kenya, however no official population data is available at the time of this update (Muneza *et al.* 2018).

Although East (1999) suggested that giraffe had gone extinct in Mago National Park, incidental observations in 2006 suggested the existence of a remaining giraffe population, looking distinctly different from the animals in Omo National Park on the opposite side of the Omo River (P. Fust pers. comm.). However, in a recent survey of the status of giraffe in Mago National Park and Tama Wildlife Reserve, interviews with park wardens suggested that giraffe no longer exist in Mago National Park (Wube 2013).

A small population of giraffe, assumed to be Nubian giraffe, remained in the Omo-Tama areas along the border with Kenya as of 2006 (Fust 2009; Renaud 2006). However, these animals were in a critical situation and very close to local extinction (Renaud 2006). Less than 20 giraffe were observed during an aerial survey of Omo National Park in 2006, indicating that the population has been further decimated over the last decade (Renaud 2006). According to anecdotal information, giraffe still occurred in the Tama Wildlife Reserve, but their status is unclear and likely less than 20 individuals (Wube 2013). Recent aerial surveys of the Omo and Tama areas were unable to confirm any giraffe remaining in these regions, however they are still considered possible ranges within the country (Elkan 2018).

A population of approximately 90 individuals, also assumed to be Nubian giraffe, were observed during an aerial count carried out in Gambella National Park in the far west of Ethiopia in 2009 and 2010 (L. Siege pers. comm.; EWCA 2010). The survey estimated a total of <150 individuals remaining. A recent aerial survey was carried out in 2018 and confirmed the presence of giraffe in Gambella NP and surrounding areas, however no data was available for estimating the remaining population (Elkan 2018).

In summary, current giraffe numbers for Nubian giraffe in Ethiopia are estimated at <200, mainly residing in and around Gambella NP with a possibility of a small population existing in the Omo and Tama regions. There are possibly some reticulated giraffe of which the numbers are unknown but estimated at <100 individuals, occurring in the Borana region on the border with Kenya.

Future Conservation Management

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

- Greater understanding of giraffe population numbers, range and conservation status across the country, including (sub)speciation;
- Development of National Giraffe Strategy for Ethiopia;
- Identification of priority conservation efforts for giraffe conservation, specifically for viable remaining populations such as in Gambella National Park; and
- Support to dedicated giraffe conservation, habitat protection, education and awareness initiatives (government, NGO and academic).



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References

- Bekele, S. & Hailemariam, A. 2010. *Population dynamics and environment in Ethiopia: An overview*. In Ethiopian Environment Review **1**: 1-18. Forum for Environment. Addis Ababa, Ethiopia.
- Blower, J. 1968. The wildlife of Ethiopia. *Oryx* **9**: 276-285.
- Bolton, M. 1973. Notes on the current status and distribution of some large mammals in Ethiopia (excluding Eritrea). *Mammalia* **37(4)**: 562-586.
- Borghesio, L. & Giannetti, F. 2005. Habitat degradation threatens the survival of the Ethiopian bush crow *Zavattariornis stresemanni*. *Oryx* **39**: 44-49.
- The Conversation. 2017. *Fears over Ethiopian dam's costly impact on environment, people*. The Conversation Africa. <https://theconversation.com/fears-over-ethiopian-dams-costly-impact-on-environment-people-80757>. Downloaded June 2019.
- 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. 1982. *The giraffe: Its biology, behaviour and ecology*. Krieger Publishing Company, Malabar, Florida, USA.
- Damtie, M. 2010. *Legal and institutional issues for environment in Ethiopia in 2008*. In: Ethiopian Environment Review **1**: 1-18. Forum for Environment. Addis Ababa, Ethiopia.
- Duckworth, F.W. 1974. Gambella 1973 – a wildlife resort. *Walia* **5**: 9-11.
- Duckworth, F.W. 2002. *An assessment of Ethiopia's wildlife situation*. Ethiopian Reporter, Ethiopia.
- East, R. 1999. *African Antelope Database 1998*. IUCN/SSC Antelope Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK.
- Elkan, P. 2018. *WCS aerial and terrestrial reconnaissance survey Gambella-Omo-Tana-Mago November 2018*. WCS unpub. data.
- Enawgaw, C., Deksios, D. & Timer, G. 2011. *Existing challenges: Plantation Development versus Wildlife Conservation in the Omo-Tama-Mago Complex*. Unpublished report, Ethiopian Wildlife Conservation Authority, Ethiopia.
- EWCA. 2010. *Aerial survey report: Gambella reconnaissance 2009 & census 2010*. http://africanelephantdatabase.org/system/population_submission_attachments/files/000/000/315/original/svyFEETGAM2010AS.pdf Downloaded May 2019.
- 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 giraffes species instead of one*. *Current Biology*, **26**: 2543-2549.
- Fust, P. 2009. Influences of anthropogenic activities on the giraffe (*Giraffa camelopardalis*) population of Omo National Park. *Giraffa* **3(1)**: 29-31.
- Graham, A., Enawgaw, C. & Netserab, B. 1996. *Trends in large herbivores of Omo and Mago National Parks*. DHV consultants. National Parks Rehabilitation in Southern Ethiopia Project. Technical Report No. 5. Addis Ababa, Ethiopia.



- Hillman, J.C. 1992. *The Government of Ethiopia – Wildlife Management Policy and Strategy*. Addis Ababa, Ethiopia.
- Hillman, J.C. 1993. *Compendium of Wildlife Conservation Information*. Vol 1: Wildlife Conservation in Ethiopia 553-569. Ethiopian Wildlife Conservation Organization, Addis Ababa, Ethiopia.
- Hunt, J.A. 1951. *A General Survey of the Somaliland Protectorate 1944-1950*. Waterlow & Sons, London.
- IUCN 2012. *The IUCN Red List of Threatened Species. Version 2012.1*. <http://www.iucnredlist.org>
Downloaded on 24 August 2012.
- Jacobs, M. & Schloeder, C. 2001. *Impacts of conflict on biodiversity and protected areas in Ethiopia*. Biodiversity Support Program, World Wildlife Fund, Inc., Washington, D.C., USA.
- Kingdon, J. 1979. *East African Mammals: An Atlas of Evolution in Africa*, Vol. 3, Part B: Large Mammals 231-249. Chicago, University of Chicago Press.
- Lamprey, R.H. 1994. *Aerial census of Omo and Mago National Parks, Ethiopia*. Environment and Development Group, Oxford / Ethiopia Wildlife Conservation Organization (EWCO), Addis Ababa.
- 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. 2016. *Giraffa camelopardalis*. The IUCN Red List of Threatened Species 2016: e.T9194A51140239. www.iucnredlist.org/details/9194/0 (Downloaded February 2019).
- Muneza, A., Doherty, J.B., Hussein Ali, A., Fennessy, J., Marais, A., O'Connor, D. & Wube, T. 2018. *Giraffa camelopardalis ssp. reticulata*. The IUCN Red List of Threatened Species 2018: e.T88420717A88420720. <http://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T88420717A88420720.en>. Downloaded on 13 June 2019.
- Renaud, P.C. 2006. *Omo National Park report for the Wet season aerial survey*. African Parks Foundation, Ethiopia.
- Stephenson, J. & Mizumo, A. 1978. *Recommendations for the conservation of wildlife in the Omo-Tama-Mago Rift Valley of Ethiopia*. Report to the Wildlife Conservation Department of the Provincial Military Government of Socialist Ethiopia.
- Tefera, M. 2011. Wildlife in Ethiopia: Endemic Large Mammals. *World Journal of Zoology* **6(2)**: 108-116.
- Tessema, M.E. 2017. *Wildlife crime assessment in Ethiopia*. IUCN National Committee of the Netherlands, Amsterdam. https://www.iucn.nl/files/publicaties/wlc_doc-ethiopie_small.pdf. Downloaded June 2019.
- Wildlife Development, Conservation and Utilization Council of Ministers Regulations No. 163/2008.
- Wikipedia. 2012. Gilgel Gibe III Dam. http://en.wikipedia.org/wiki/Gilgel_Gibe_III_Dam (Accessed 4 July 2012).
- Winter S, Fennessy J, Janke A. 2018. *Limited introgression supports division of giraffe into four species*. *Ecol Evol.*; **8**:10156–10165. <https://doi.org/10.1002/ece3.4490>
- Wube, T. 2013. *Status of giraffes in Ethiopia – the case of Mago National Park and Tama Wildlife Reserve*. Unpublished Report. Department of Zoological Sciences, Addis Ababa University, Addis Ababa.
- Yalden, D.W., Largen, M.J. & Kock, D. 1984. Catalogue of the mammals of Ethiopia. *Artiodactyla. Monitore Zoologico Italiano Vol 5*, N.S. Supplemento **19(4)**: 67-221.

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Map

