



## Country Profile

# Republic of South Sudan

### *Giraffe Conservation Status Report*

September 2020

*N.B. Although the focus of this profile is on the Republic of South Sudan, reference is made to the historical occurrence of giraffe in the historical Sudan.*

#### General statistics

Size of country: 644,329 km<sup>2</sup>

Size of protected areas / percentage protected area coverage: 11.1%

#### 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one species (*Giraffa camelopardalis*) and nine subspecies of giraffe (Muller *et al.* 2018) historically based on outdated assessments of their morphological features and geographic ranges.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 species of giraffe and likely six subspecies (Fennessy *et al.* 2016; Winter *et al.* 2018). The four species are Masai giraffe (*G. tippelskirchi*), northern giraffe (*G. camelopardalis*), reticulated giraffe (*G. reticulata*) and southern giraffe (*G. giraffa*). The northern giraffe has three subspecies: Nubian giraffe (*G. c. camelopardalis*), Kordofan giraffe (*G. c. antiquorum*), and West African giraffe (*G. c. peralta*). The southern giraffe has two subspecies: Angolan giraffe (*G. g. angolensis*) and South African giraffe (*G. g. giraffa*). Two of the former subspecies have been subsumed within other taxa as data supports they are genetically identical: the Rothschild's giraffe (*G. c. rothschildi*) is synonymous with the Nubian giraffe (*G. c. camelopardalis*) and it is likely the Thornicroft's giraffe (*G. c. thornicrofti*) is synonymous with the Masai giraffe (*G. c. tippelskirchi*) (Fennessy *et al.* 2016; Winter *et al.* 2018). Two of the former subspecies are raised to specific rank: *G. c. reticulata* is now the reticulated giraffe (*G. reticulata*) and *G. c. tippelskirchi* is now the Masai giraffe (*G. tippelskirchi*). 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 possibly occur in the Republic of South Sudan:

**Species:** Northern giraffe (*Giraffa camelopardalis*)

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

Nubian giraffe (*Giraffa camelopardalis camelopardalis*)

### Conservation Status

#### IUCN Red List (IUCN 2018):

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

*Giraffa giraffa* (as a species) – Not Assessed

*Giraffa camelopardalis antiquorum* – Critically Endangered (Fennessy & Marais 2018)

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

#### In the Republic of South Sudan:

Giraffe in the Republic of South Sudan (referred to as South Sudan in the rest of this report) are listed under Chapter 5, Section 25 of the Wildlife Conservation and National Parks Act of 2003. No person shall hunt or capture any animal listed in Schedule 1 of the Act, including giraffe.

### Issues/threats

Sudan as a single country descended into civil war in 1983. In 2005, after 22 years of war between the National Congress Party (NCP) in the north and the Sudanese People's Liberation Army (SPLA) in the south, the parties signed the Comprehensive Peace Agreement (CPA), putting an end to Africa's longest running conflict. In 2011, the South Sudan officially became an independent nation. Unfortunately, this period of relative peace was short lived, with South Sudan again falling into civil war in 2013 after the President accused the Vice President of instigating a failed coup (BBC News 2018). This conflict lasted for a further five years and recently ended in August 2018 with the signing of a power-sharing agreement (BBC News 2018).

The armed conflict has severely impacted the lives of communities in and around protected areas in South Sudan, and as such, has resulted in a major assault on the country's wildlife and their habitats (Fay *et al.* 2007; UNEP 2007). Hunting played an important role in human survival during the war and, as a result, uncontrolled and unsustainable hunting decimated wildlife populations (Abdel Magid & Badi 2008; Fay *et al.* 2007; UNEP 2007). Effective management of the country's protected areas throughout the period of the civil war was essentially non-existent while the human, physical, institutional and systemic infrastructure was largely destroyed (Fay *et al.* 2007; UNEP 2007). Moreover, most of these protected areas, while created on paper only, never underwent a consultation process with local stakeholders and protected area boundaries were never demarcated. Additionally, constraints such as inadequate enabling policies and a lack of institutional capacity for wildlife management at operational and administrative levels were a real concern (WCS 2012; UNEP 2007).



With improved stability and prospects for peace and development, the pressure on land and natural resources will rapidly increase in South Sudan (Fay *et al.* 2007; HCENR 2009). Threats to wildlife populations are probably even greater now than during the civil war (Fay *et al.* 2007). Resource extraction plans begun shortly after the signing of the CPA. Oil exploration concessions have been granted in a large section of the Boma-Jonglei landscape; unsustainable commercial hunting is on the rise as safari hunters are vying for concessions; widespread use of automatic weapons by unauthorised individuals for illegal hunting is common; natural resources have been subject to heavy over-exploitation for agriculture and felling for fuel; and, major infrastructure developments, aided by the international community, are taking place in and around protected areas and important wildlife habitats with little or no environmental assessment, management or planning (WCS 2012; HCENR 2009; Abdel Magid & Badi 2008; Fay *et al.* 2007). Pressures on natural resources continue to increase further due to the inadequately coordinated return of internally displaced people as well as refugees from other countries (HCENR 2009; Fay *et al.* 2007). The effects of these developments will continue to increase pressures on natural resources and competition for land and water, which in turn can have a detrimental effect on wildlife populations (Fay *et al.* 2007).

Data on wildlife numbers for South Sudan is limited. Due to the conflict, little natural resource data has been collected between 1983 and 2005. While recent aerial censuses are helping to fill data gaps, comprehensive population censuses are costly, labour-intensive and time consuming, and it is therefore unlikely that South Sudan's dearth of data will be remedied soon (IRG 2007). Although these aerial surveys indicate that much of South Sudan's terrestrial biodiversity is intact, this does not lessen the existing threats. Critical wildlife species are still at risk, and uncontrolled and unsustainable hunting has caused the local eradication of, among other species, giraffe in certain areas in South Sudan (Fay *et al.* 2007; IRG 2007).

## Estimated population abundance and trends

### Historic

Faunal remains from the Holocene in Central and Eastern Sudan indicate the historical occurrence of giraffe in the Central Nile valley, Central Nile hinterland, as well as on the Atbara floodplains (Nicoll 2004; Peters 1992). According to East (1999), giraffe formerly occurred widely in southern, central and north-eastern Sudan, with Kordofan giraffe (*G. c. antiquorum*) said to occur to the west of the Nile and Nubian giraffe (*G. c. camelopardalis*) to the east. Mackenzie (1954) and Dagg (1962) both documented the general occurrence of giraffe in Sudan. They suggested that Nubian giraffe were fairly common in arid *Acacia* forests and savanna in eastern Sudan bordering Ethiopia as well as fairly common in the thin forests of southern Sudan and on the plains and foothills east of Kapoeta in Eastern Equatoria. Additionally, Kordofan giraffe were scarce in *Acacia* forests and savanna in western and central Sudan (Dagg 1962; Mackenzie 1954).

Several anecdotal records documented the occurrence of giraffe in Sudan from the late 1700s up to the late 1970s, when the first aerial surveys were conducted. Giraffe were apparently widespread and numerous in South Darfur and were also documented to occur in North Darfur (Wilson 1979 & 1980; Burckhardt 1819; Browne 1799). The species was present in the extreme south-west of the country in the area of Kafia Kingi, and Hofret-en-Nahas to the north-west in the Tebella area in the early 1900s (Wilson 1979). Brocklehurst (1931) suggested that Kordofan giraffe were common throughout Sudan and extended as far north as the Wadi Howar in North Darfur. He documented a herd of several hundred giraffe occurring close to the mouth of the Bahr-el-Ghazal and also noted the occurrence of Rothschild's (Nubian) giraffe in the Mongalla Province in South Sudan. Giraffe were hunted on horseback with swords in south Kordofan and on the frontier of



Abyssinia (current day Ethiopia) on the Dinder River (Brocklehurst 1931). In 1927 giraffe were considerably depleted in numbers in the Kordofan Region by a form of rinderpest (Brocklehurst 1931).

Giraffe were seen north of the Wadi Howar in 1932 (Shaw 1936) and were supposedly fairly common in the Geneina and as far north as El Fasher in the late 1940s and early 1950s (Wilson 1980). The species were also recorded in the Kebkabiya area in 1950 (Wilson 1980). Reid (1952) documented a small herd of giraffe occurring on the in the Yei-Juba border and suggested that the species also occurred near Jambo in the Moru District, in the area North of Amadi and near Ngwadi. Sutcliffe (1952) reported giraffe to occur in the Aliab Valley. In Western Darfur, on the border with Chad, an estimated 60 animals were present in 1976 (Wilson 1979). Aerial surveys in the same year indicated up to 1,800 giraffe in Darfur (Wilson 1979).

The Kordofan giraffe was reportedly scarce by the 1970s (East 1999). Molloy (1951) and Wilson (1979) suggested that giraffe were possibly seriously depleted in numbers owing to the practice of illegally hunting them on horseback with swords and spears. East (1999) indicated that giraffe were hunted to extinction over most or even all of its former range in the central and north-eastern regions of Sudan. The last herd of giraffe in Dinder National Park in the east was illegally hunted in 1985. Giraffe also no longer occur in Radom National Park in the west of Sudan (East 1999).

The first aerial surveys of the Boma National Park in South Sudan, although not legally created at the time due to the disruption of the civil war, were conducted in 1979-80 and estimated the occurrence of ~9,028 individuals, reportedly all Nubian giraffe (Fryxell 1980a, 1980b). In 1981, an aerial survey of the greater Southern National Park estimated 1,325 (Kordofan) giraffe inside the park and 770 (Kordofan) giraffe in the surrounding area (Boitani 1981). Reconnaissance flights of the Shambe area revealed estimates of some 3,429 animals, also assumed to be Nubian giraffe but located west of the Nile River (Hillman *et al.* 1981). Three systematic surveys of the Jonglei area in 1981-82 indicated an estimated 6,025 (Nubian) giraffe (Cobb 1983).

### Current

Although still present in South Sudan, there is no recent information on the continued occurrence of giraffe in Sudan and the species has possibly become locally extinct. During 22 years of civil war hardly any wildlife surveys were carried out (Fay *et al.* 2007). Ground surveys of the wildlife populations in Boma National Park in 2001 and 2002 confirmed the presence of giraffe (Marjan *et al.* 2002). At the time, aerial surveys could not be conducted due to the ongoing war (WCS 2012).

The first systematic aerial assessment of wildlife in South Sudan in 25 years was conducted in 2007 by the Wildlife Conservation Society in partnership with local government authorities (Fay *et al.* 2007). The survey covered the most important protected areas and species ranges as well as potential protected areas, including Boma and Southern National Parks as well as the Jonglei area (Fay *et al.* 2007). A population of 404 giraffe were estimated to occur in Boma National Park. Additionally, giraffe were observed during reconnaissance flights over Bandingilo Reserve and viable populations may possibly remain there (Fay *et al.* 2007). However, no giraffe were sighted during aerial surveys of the Jonglei area and the Southern National Park (Fay *et al.* 2007).

The most recent aerial survey was performed during 2015-16 by WCS and documented the presence of Kordofan giraffe in Shambe National Park and Nubian giraffe in Badingilo, Boma and Loella areas (WCS 2017). However, giraffe were in very low numbers with only a few hundred thought to still exist across South Sudan and are at high risk of becoming locally extinct (WCS 2017). There have also been recent documentation of



Nubian giraffe crossing into South Sudan's Kidepo Game Reserve from Uganda's Kidepo Valley National Park, the first recorded movement of giraffe from Uganda into South Sudan in recent history (GCF 2019).

Based on the surveys above, the current giraffe numbers for South Sudan are estimated at <450 individuals, the vast majority being Nubian giraffe and less than 100 Kordofan giraffe.

### Future Conservation Management

The following are proposed conservation management options for giraffe in South Sudan:

- Greater understanding of giraffe population numbers, range and conservation status across the country, including (sub)speciation;
- Development of National Giraffe Strategy for South Sudan;
- Identification of priority conservation efforts for giraffe conservation, specifically for viable remaining populations such as Boma National Park;
- Support to dedicated giraffe conservation, habitat protection, education and awareness initiatives (government, NGO and academic); and
- Assess transboundary giraffe conservation and management initiatives with neighbouring countries i.e. Ethiopia, Uganda and Kenya.

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## Map

