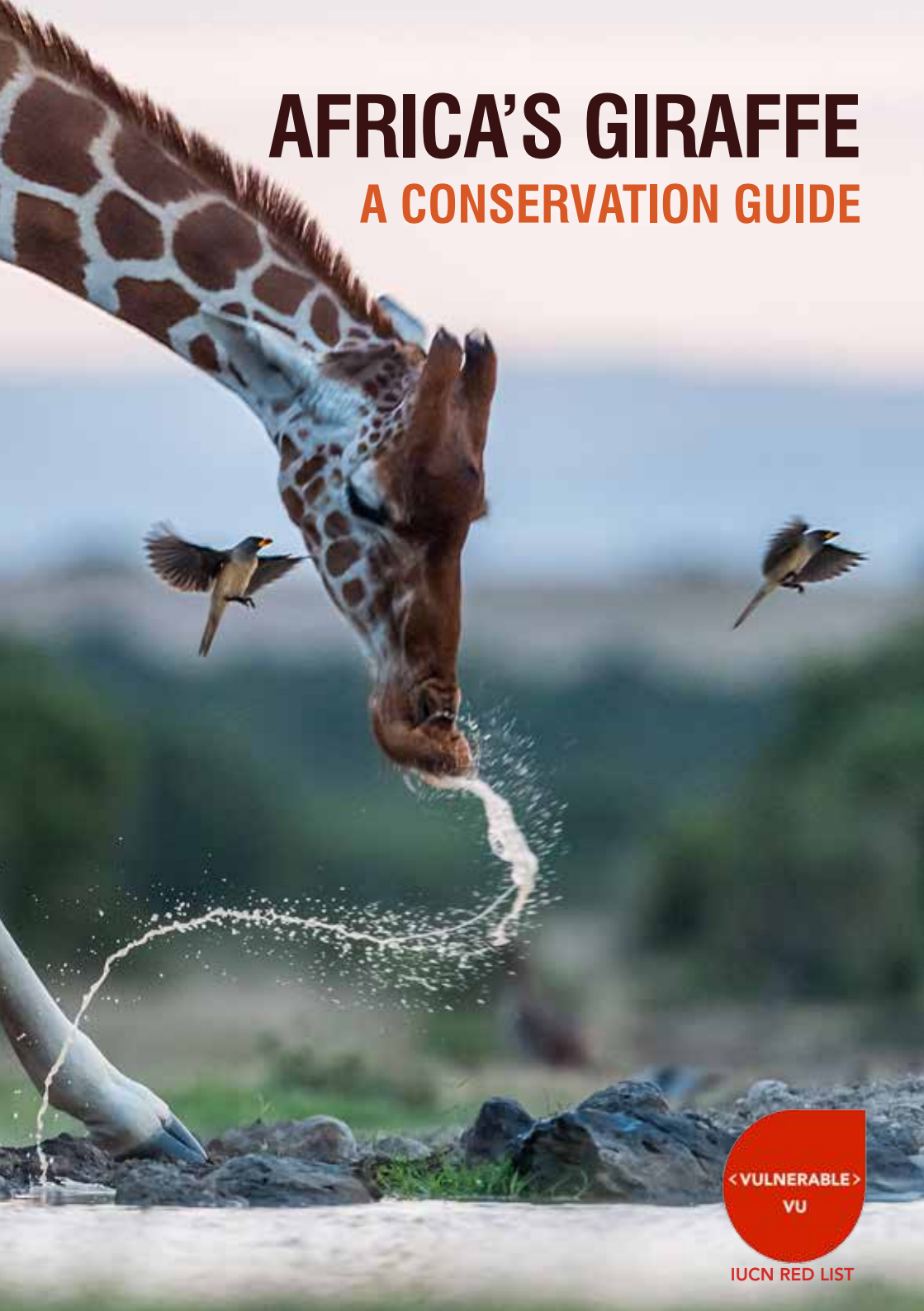
AFRICA'S GIRAFFE

A CONSERVATION GUIDE



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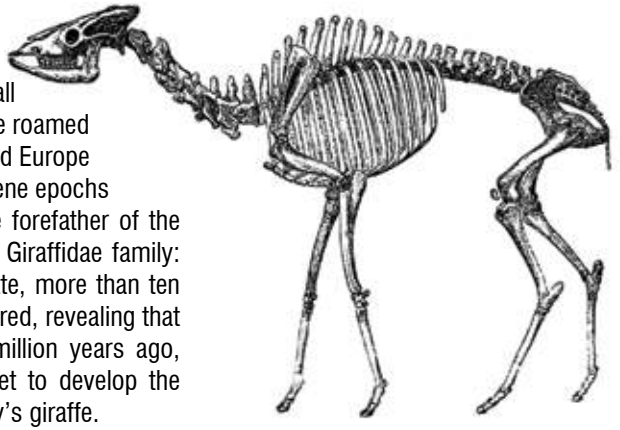
Introduction

Africa's Giraffe – A Conservation Guide, provides essential, up-to-date information on one of the world's most iconic animals: the giraffe. It highlights conservation and management challenges faced by all stakeholders across the continent, from local communities to governments and their agencies, and from the non-governmental conservation community to the private sector. This guide comes at a significant time for giraffe in Africa with the present knowledge that their numbers have suffered a decrease by approximately 40% in the past three decades, and the recent discovery that there are in fact four species of giraffe and not only one, as previously assumed. Giraffe are still considered as one species by the International Union for the Conservation of Nature (IUCN), and their formal conservation status on the IUCN Red List of Threatened Species is now listed as *Vulnerable*. Additionally, two subspecies have already been classified as *Endangered* with a high conservation priority.

Surprisingly, giraffe in the wild have been largely ignored and under-researched. This situation is slowly being addressed. With a few exceptions, giraffe are in decline throughout the continent and the need for a concerted conservation effort has never been more urgent. In order to address this, the Giraffe Conservation Foundation (GCF) has drafted an Africa-wide Giraffe Strategic Framework, providing a road-map for giraffe conservation throughout Africa.

Evolution



WIKIMEDIA COMMONS

Helladotherium, a three-metre-tall antelope-like animal, which once roamed the plains and forests of Asia and Europe between the Eocene and Oligocene epochs 30-50 million years ago, is the forefather of the two remaining members of the Giraffidae family: the giraffe and the okapi. To date, more than ten fossil genera have been discovered, revealing that by the Miocene epoch, 6-20 million years ago, early deer-like giraffids were yet to develop the characteristic long neck of today's giraffe.

Giraffe and humans

This exotic, long-necked creature has captured the human imagination through the ages, as demonstrated in art throughout the African continent, be it by the Egyptians, the Nubians or, in the south, the San. Rock carvings in the Sahara Desert in northern Niger, estimated to be 9,000 years old, represent the earliest, and arguably the most impressive, recorded human association with giraffe. Beyond the African continent, the giraffe delighted Caesar's Rome as long ago as 46 BC and it also features in artwork from the Chinese Ming dynasty.

The giraffe continues to be iconic today. It is the national animal of Tanzania, and in Botswana, it is considered to be the royal totem and, therefore, may not be hunted. Its distinctive, iconic image is used in advertising around the world to sell anything from children's apparel to wine, or for the promotion of social media fads and the FIFA World Cup.

Why then, having captivated humans so infinitely through the ages, has the giraffe been allowed to slip beneath the conservation radar? Why are they experiencing such significant population declines in much of their remaining range? These are only two out of the many questions that urgently require answers to help save giraffe, before it is too late.

OPPOSITE These giraffe images, which are carved life-size and with incredible detail into rock, are believed to date back 9,000 years to a time when the Sahara was wet and green.

DID YOU KNOW?

In 1612, a giraffe star-constellation was identified in northern hemisphere skies.

GIRAFFE FACTS

Height (average adult)	♂ 5.3m (17ft 4in) ♀ 4.3m (14ft 2in)
Weight (average adult)	♂ 1,200kg (2,600lb) ♀ 830kg (1,800lb)
Largest	♂ recorded at 6m (19+ ft)
Heaviest	♂ recorded at 1,900kg (4,200lb)
Foot size	30cm (12in) diameter Hoof: ♂ 20cm (8in); ♀ 18cm (7in) (average)
Defence	Forelegs and hind legs can deliver a lethal kick. They can kick in all directions.
Speed	50km/h (30mph) for sustained periods; calves less than 3m (9ft 10in) high can outrun adults.
Means of feeding	Browsing, using a prehensile tongue (50cm (20in) long) and upper lip.
Diet	Tree leaves, fruits, pods and shoots; rarely grass.
Senses	Colour vision, acute sense of smell, good hearing.
Sleep	4.5hrs, mainly at night; both standing and lying down.
Longevity	+/- 25 years (average)
Social behaviour	Ranges from solitary (often older males) to large, loose, mixed herds. Herds adjust their social systems, known as fission-fusion, by individuals or smaller groups readily merging with or splitting from the herd. This differs from one population to another.
Sex ratio	Very close to 1:1 (average)
Age at sexual maturity	♂ restricted by competition from larger males. ♀ 3-4 years; in oestrus 1 day every 2 weeks.
Breeding lifetime	Throughout life. ♀ recorded mating within weeks of giving birth.
Gestation	+/- 15 months (453-464 days)
Offspring	Single calf, rarely twins; known to stay with mother until 22 months old, but often independent much sooner, depending on the gender.
Conservation Status	Giraffe, as a species, are listed as *Vulnerable* on the IUCN Red List.

Taxonomy and Species

Like okapi, hippo, oryx, buffalo and cattle, the giraffe is an even-toed ungulate. Rhino, zebra and horses are odd-toed ungulates. As the world's tallest animal and largest ruminant (*an animal that partly digests its food, then regurgitates it to chew as 'cud'*), it belongs to:

Class: Mammalia (mammals)
Order: Artiodactyla (even-toed ungulates)
Family: Giraffidae
Genus: *Giraffa*

Until recently, it was widely recognised that there was only one species of giraffe, and nine subspecies. New genetic research, conducted by GCF and partners, has shown that there are in fact four distinct species of giraffe, and five subspecies. These ground-breaking findings will enhance future giraffe research, conservation and management. To confirm these findings, further research is being carried out by GCF and partners to correlate genetics with the traditional classification taxonomy methods, based on morphology and geography.

All four giraffe species and their subspecies live in geographically distinct areas throughout Africa. While some of these species have been reported to hybridise in zoos, there is very little evidence that this occurs readily in the wild.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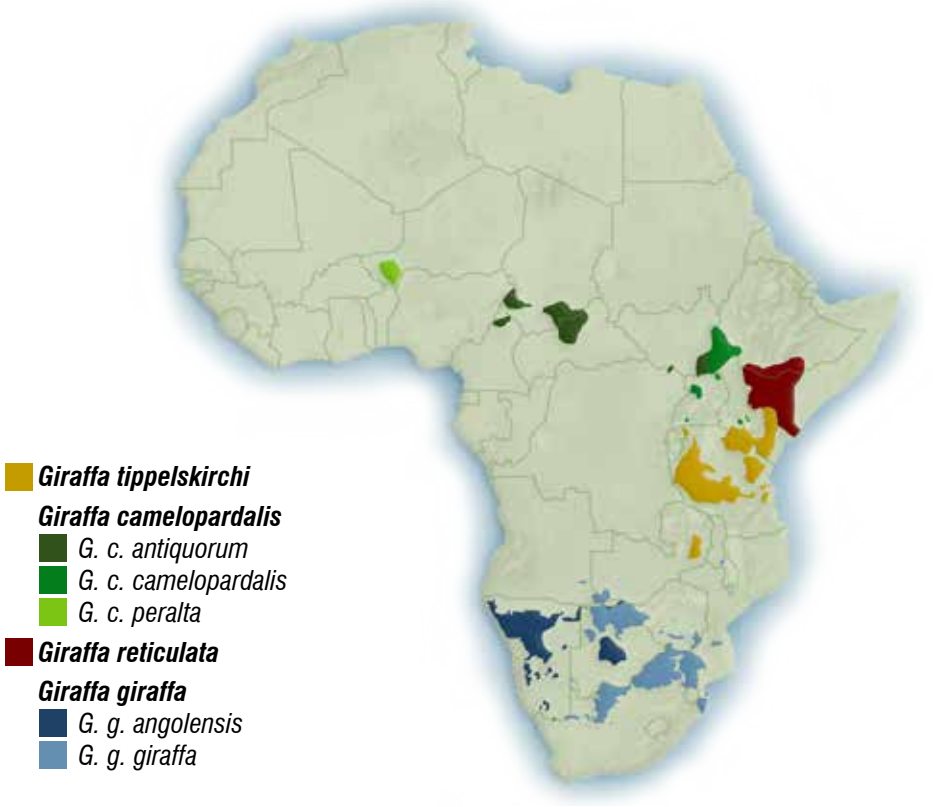
Distribution and Habitat



The four species of giraffe currently occur in 21 countries, forming a wide arc throughout sub-Saharan Africa from Niger to Central and East Africa, down to southern Africa. Giraffe are predominantly browsers and their long custom-built legs and neck ensure the utilisation of a food source beyond the reach, except for elephant, of any other animals. Surprisingly, despite this highly specialised adaptation, giraffe are extremely versatile and also flourish in habitats with relatively few tall trees where, instead, they trim the tops of bushes and smaller trees. Nevertheless, the quintessential image of a giraffe shows it reaching up to browse on one of Africa's large *Acacia* trees.

To drink, giraffe first have to splay their forelegs and/or bend their knees, and only then can they lower their necks to drink. However, despite their body mass, water is not a necessity as they can absorb sufficient moisture from their food plants. Even when water is readily available, evidence shows that many giraffe do not drink regularly – sometimes, not at all.

Masai giraffe
Giraffa tippelskirchi

Masai giraffe range across central and southern Kenya; throughout Tanzania; and an isolated population exists in the South Luangwa Valley, northeastern Zambia (formerly known as Thornicroft's giraffe). Extralimital populations (*those outside their natural range*) have been translocated to the Akagera National Park, Rwanda. Formerly the most populous giraffe with an estimated 66,500 individuals three decades ago, less than half (32,500) of them remain in the wild today. Approximately 600 of the remaining individuals occur in the geographically isolated Zambian population. Ongoing reports of poaching suggest that their population continues to decrease.

The Masai giraffe is often noticeably darker than other species. Its patches are large, dark brown and distinctively vine leaf-shaped with jagged edges. The patches are surrounded by a creamy-brown colour, which continues down their lower legs.

Northern giraffe
Giraffa camelopardalis

Three subspecies of the northern giraffe occur across Eastern and Central Africa.

Subspecies:

Kordofan giraffe *G. c. antiquorum*

The Kordofan giraffe's range includes some of Africa's more hostile areas: southern Chad, Central African Republic, northern Cameroon, northern Democratic Republic of Congo, and western South Sudan. It is estimated that fewer than 2,000 individuals survive in these war ravaged countries. Some of these populations were previously assumed to be other giraffe subspecies, but our recent research has shown that they are a distinct subspecies.

The Kordofan giraffe's patches are pale and irregular. Similar to other northern giraffe subspecies, they have no markings on their lower legs.

Subspecies:
Nubian giraffe *G. c. camelopardalis*

The Nubian giraffe is the nominate subspecies, which means that its Latin sub-specific name is the same as the original species described because it was the first specimen recorded. The estimated number of Nubian giraffe is 2,645 individuals, which includes the genetically identical formerly recognised Rothschild's giraffe. At present, fewer than 200 occur in western Ethiopia, 450 in eastern South Sudan, 450 in Kenya, and more than 1,545 in Uganda.

Interestingly, the majority of Nubian giraffe in Kenya live extralimitally (*outside their natural range*), which is the result of an effort to establish viable populations for conservation.

Exact information about the precariously small and fragmented populations in Ethiopia and South Sudan is extremely difficult to ascertain, and their numbers are likely lower due to ongoing poaching in the region. In 2010, the formerly known Rothschild's subspecies was classified as Endangered and of high conservation importance on the IUCN Red List.

The Nubian giraffe's patches are large, rectangular and chestnut-brown. The patches are surrounded by an off-white, creamy colour. There are no markings on their lower legs.

Subspecies:
West African giraffe *G. c. peralta*

At the beginning of the 20th century the West African giraffe were widely distributed, from Nigeria to Senegal, but by the mid 1990s only 49 individuals remained in the whole of West Africa. These few survivors are now formally protected by the Niger government and their numbers have risen to approximately 550 individuals. However, their future is still of great concern as they live in an isolated pocket (*the giraffe zone*) east of the capital Niamey, and share their living space with local villagers. No other large wild mammals occur in this area, and habitat loss and destruction is increasing. In 2008, the West African giraffe was classified as Endangered and of high conservation importance on the IUCN Red List.

The West African giraffe is noticeably light in appearance. Their patches are rectangular and tan coloured, and are broadly surrounded by a creamy-colour. There are no markings on their lower legs.

Reticulated giraffe
Giraffa reticulata

The reticulated giraffe has a relatively limited distribution across northern and north-eastern Kenya, and small restricted populations most likely persist in southern Somalia and southern Ethiopia. It is estimated that about 8,700 individuals remain in the wild – a significant decrease from the approximate 37,000 three decades ago. However, numbers across northern Kenya appear to be increasing with improved community and private land conservation.

It is easy to see why this species is called the reticulated giraffe, as its rich orange-brown patches are clearly defined by a network of striking white lines, which continue the entire length of their legs.

Southern giraffe
Giraffa giraffa

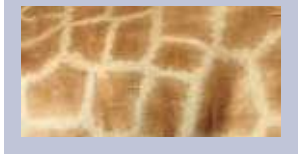
Two subspecies of the southern giraffe occur across Southern Africa and, together, they make up more than 50% of the continent's total giraffe numbers.

Subspecies:

Angolan giraffe *G. g. angolensis*

Despite their name, Angolan giraffe were extirpated (*locally extinct*) in Angola until recent translocations. The Angolan giraffe's range includes central Botswana and most parts of Namibia. Extralimital populations (*those outside their natural range*) have been translocated to South Africa, and to private land in Botswana and Zimbabwe. The estimated 5,000 individuals three decades ago have, today, almost tripled to an estimated 13,050 in the wild.

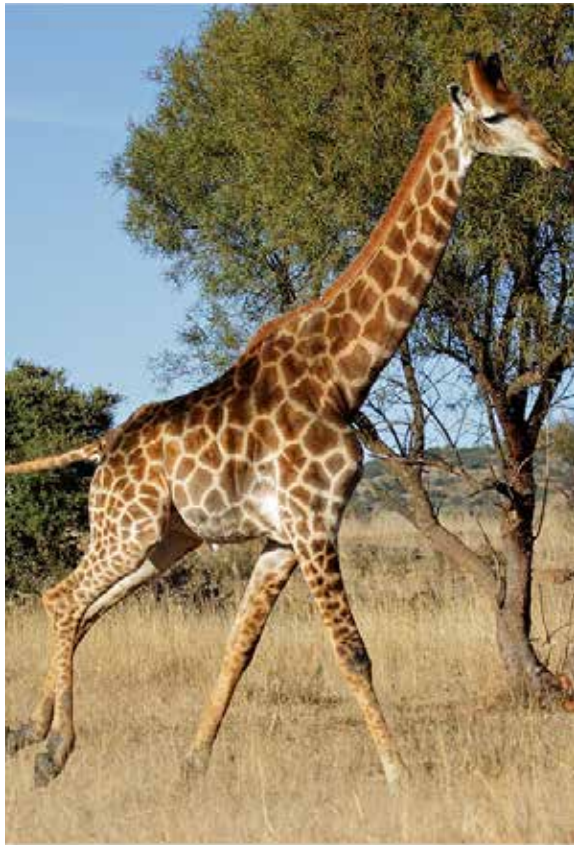
The Angolan giraffe is relatively light in colour. In northwest Namibia, where it is particularly arid, they can be almost colourless. They have large, uneven and irregularly notched light brown patches. Their patches are surrounded by a pale cream colour, and their lower legs are randomly speckled with uneven spots.



Subspecies:

South African giraffe *G. g. giraffa*

The South African giraffe ranges from west to east across southern eastern Angola; northern Botswana; southern Mozambique; northern South Africa; south-western Zambia; and eastern and southern Zimbabwe. Previous re-introductions of the South African and Angolan giraffe to overlapping areas have likely resulted in hybrid populations. There have also been extralimital (*outside their natural range*) introductions of South African giraffe across Angola, Senegal, South Africa, Zambia and Zimbabwe. At present, the South African giraffe population is estimated at 39,000 individuals, showing a marked increase over the past three decades.



The South African giraffe has star-shaped patches in various shades of brown, surrounded by a light tan colour. Their lower legs are randomly speckled with uneven spots.

Conservation

<VULNERABLE>
VU

Status and statistics

Three decades ago, in the 1980s, the total number of all giraffe in Africa was estimated at greater than 155,000 individuals. Today, the IUCN Species Survival Commission (SSC) Giraffe & Okapi Specialist Group and GCF estimate the current Africa-wide giraffe population to be less than 100,000 individuals. This is a drop by almost 40%. In some areas traditionally regarded as prime giraffe habitat, numbers have dropped by more than 95%.

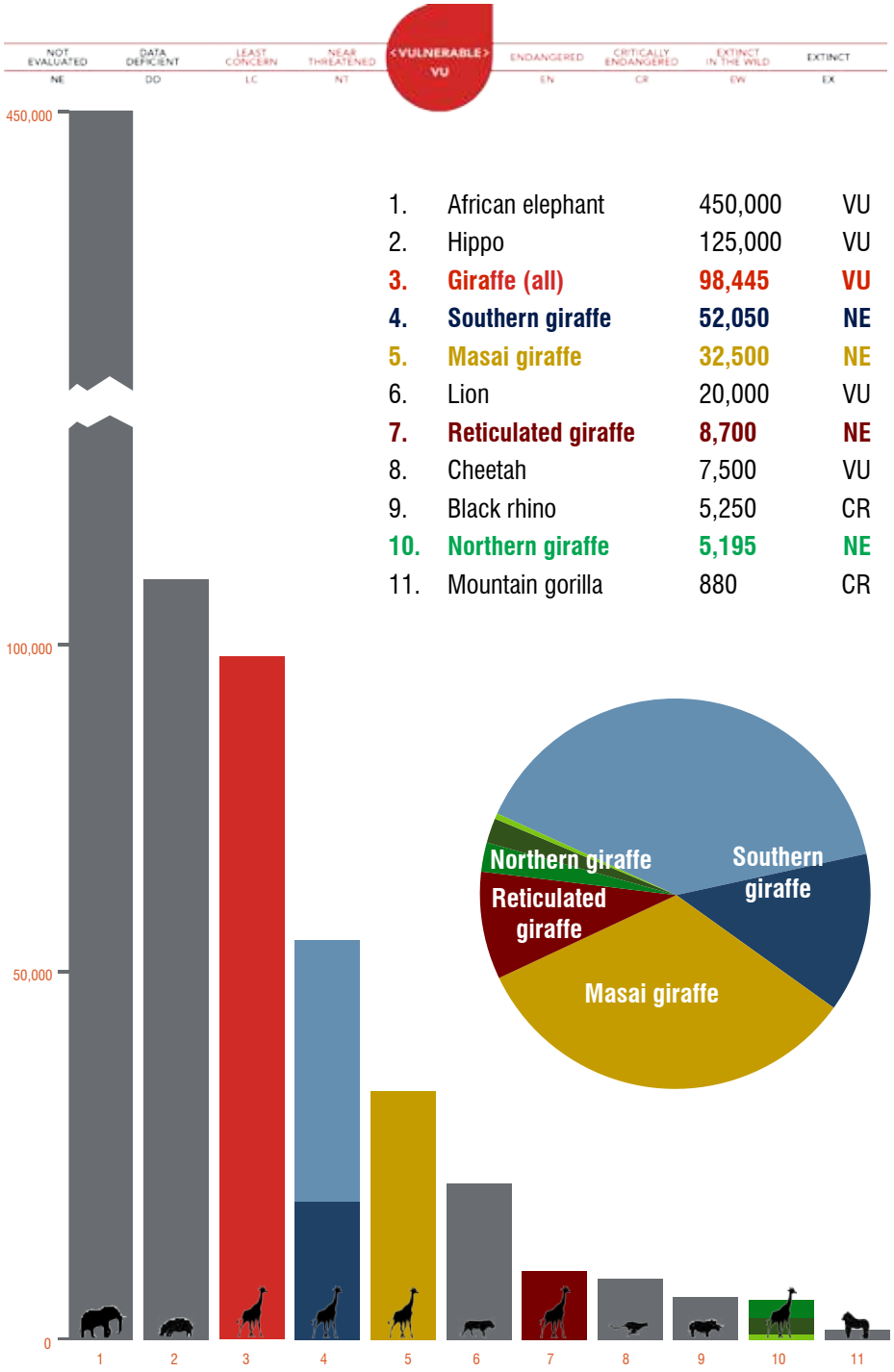
Limited conservation research has been undertaken on giraffe throughout Africa. Whilst the IUCN Red List currently recognises one species of giraffe and nine subspecies, new findings by GCF and partners propose that there are actually four species and five subspecies of giraffe. More research is needed to confirm these findings before the IUCN can take them into consideration for future assessments.

As a species, the giraffe is listed as *Vulnerable* on the IUCN Red List of Threatened Species. Furthermore, two of the currently recognised subspecies are listed as *Endangered*. Updated assessments for most other subspecies have been submitted for review to better understand their conservation status.

GCF researchers have begun, and continue, to develop the first-ever continent-wide giraffe-range-state country profiles. These profiles collate all historical and currently available census and anecdotal data on giraffe numbers and distribution, as well as their specific threats.

Below are the most up-to-date population figures, some of which formed the basis of the updated IUCN Red List assessment of giraffe as *Vulnerable*.

Species and Numbers	
***Giraffa camelopardalis* (northern giraffe)**	**5,195**
G. c. antiquorum (Kordofan giraffe)	2,000
G. c. camelopardalis (Nubian giraffe)	2,645
G. c. peralta (West African giraffe)	550
***Giraffa giraffa* (southern giraffe)**	**52,050**
G. g. angolensis (Angolan giraffe)	13,050
G. g. giraffa (South African giraffe)	39,000
***Giraffa reticulata* (reticulated giraffe)**	**8,700**
***Giraffa tippelskirchi* (Masai giraffe)**	**32,500**



1.	African elephant	450,000	VU
2.	Hippo	125,000	VU
3.	**Giraffe (all)**	**98,445**	**VU**
4.	**Southern giraffe**	**52,050**	**NE**
5.	**Masai giraffe**	**32,500**	**NE**
6.	Lion	20,000	VU
7.	**Reticulated giraffe**	**8,700**	**NE**
8.	Cheetah	7,500	VU
9.	Black rhino	5,250	CR
10.	**Northern giraffe**	**5,195**	**NE**
11.	Mountain gorilla	880	CR

CITES

As there is limited recognised international trade in giraffe and their parts, they are not listed in the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). GCF is committed to clarifying and monitoring the giraffe trade situation and reviewing the appropriateness of the current CITES listing.

IUCN Red List

Giraffe *Giraffa camelopardalis*	**Vulnerable**
West African giraffe *G. c. peralta*	**Endangered**
Rothschild's giraffe *G. c. rothschildi*	**Endangered**

DID YOU KNOW?

Giraffe 'horns' are not horns at all, but 'ossicones'. Ossicones are lumps of soft cartilage which, in later life, ossify and fuse to the skull. They are believed to aid thermoregulation.

Stakeholders

Occurring in 21 African countries, giraffe live throughout all land-management regimes: from state-owned national parks and reserves to private and communal lands. Many of the organisations and individuals who live and work in these areas, often in the wildlife industry, recognise the importance of giraffe and have become directly or indirectly involved in their conservation. As giraffe are widely distributed throughout Africa, their conservation is not an easy task. It will be a challenge to develop and coordinate a continent-wide giraffe strategy

and action plan that incorporates the priorities of each stakeholder, country, and the four species and their subspecies.

Although giraffe conservation should be seen as an Africa-wide initiative, GCF is helping to tackle it by starting with a country-by-country and species-by-species approach. Priorities are critical for the long-term objective of developing a consolidated continent-wide strategy.

Threats

The combined impacts of habitat loss, habitat fragmentation, habitat degradation, human population growth, poaching, disease, war and civil unrest threaten the remaining giraffe numbers and their distribution throughout Africa. Many threats arise from direct, indirect or perceived competition for resources with humans and their livestock. Habitat degradation and destruction is caused by an increasing human demand for agricultural land, pastoralism, and uncontrolled timber and fuel-wood harvesting.

Human-giraffe conflict can develop due to crop loss and damage, and potential disease transmission can result from habitat sharing with domestic livestock. Sadly, giraffe outside protected areas are sometimes also struck by vehicles and trains.

The fragmentation and loss of giraffe habitat caused by human encroachment often leads to the isolation of giraffe populations which, in turn, limits the flow and exchange of genetic diversity between populations.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Although there is very little evidence of species interbreeding in the wild, the translocation of one species of giraffe to an area already occupied by a different species could create the risk of hybridisation. Should they interbreed, the genetic uniqueness of each individual species would be lost.

Limiting factors

The giraffe has a distinct advantage in that it seldom competes with other wild animals or, more importantly, domestic livestock for food. Although conflict does sometimes occur, they do not naturally/normally pose a threat to humans. Nevertheless, there are a number of factors that restrict conservation initiatives throughout Africa.

Scientific

Long-term studies, reliable historical and current data, and targeted research are all lacking. This lack of information remains one of the most limiting factors when it comes to understanding the conservation and management of giraffe, as well as their ecology, taxonomy and physiology. Current giraffe projects being conducted in Africa are some of the first ever.

More extensive knowledge of giraffe is required, and exciting advances are being made. Our ongoing genetic research on giraffe populations across the continent has unravelled the mystery surrounding the giraffe's taxonomy, providing invaluable information for Africa-wide giraffe conservation and management.

The giraffe's physiology brings its own problems. Translocation projects can be highly beneficial for establishing or securing new giraffe populations, but they are a significant logistical undertaking. Conservationists and stakeholders go to great lengths in their efforts to secure giraffe populations and success can already be seen in many countries.

GPS satellite tracking units have become an important aid for understanding giraffe home

ranges and individuals' daily and seasonal movements, be they in and around human settlements or across international borders. The information these devices provide is invaluable for supporting long-term species and land management plans for giraffe and other wildlife. Nevertheless, tracking giraffe using GPS satellite units remains in its infancy and it requires greater investment in both time and resources – and by its very nature of being such a uniquely built animal, it is something of a challenge!

Ecological

Giraffe populations naturally fluctuate due to mortality through predation and disease, although this varies from population to population across the continent. Although lions prey on adult giraffe, they can result in 50% or more of new-born giraffe not making it through their first year. Giraffe are also vulnerable to leopard and spotted hyena, and to a lesser extent cheetah and crocodile. Additionally, humans pose a big problem by poaching giraffe throughout their range. Population growth is also limited by malnutrition, resulting from poor food quality and quantity, as well as diseases such as anthrax and rinderpest.

Social

When it comes to conservation, giraffe compete with more charismatic species such as elephant and lion, particularly for funding. It is estimated that the current giraffe population is a quarter of the African elephant's. This discrepancy, and little-known fact by most in the world, understandably leads many people to assume that giraffe are everywhere and do not face a conservation crisis – but the 40% population decline over the past three decades clearly demonstrates that it does.

The extent of poaching and its subsequent changes in giraffe population dynamics is still poorly understood. It is a subject that needs to be further addressed but, already, reports from various parts of Africa are not positive.

Significance of Giraffe

Economic

The giraffe's significance lies in its evolutionary uniqueness. Its silhouette, which is both unmistakable and evocative, is used around the world as a symbol to market a wide range of commercial and non-commercial products, events and initiatives. As much as it is a symbol for Africa, the giraffe is also used widely for other purposes because of its uniquely recognisable shape and its perceived gentle nature. Giraffe are much-loved by most.

In Africa, it is the tangible economic benefits generated by tourism that interest and motivate many stakeholders, particularly those who live and work amongst wildlife. Many travel operators and safari brochures include the giraffe when marketing Africa as an exciting travel destination, and giraffe are a must-see on every African safari-goer's wish list.

Unlike the 'Big Five' (buffalo, elephant, leopard, lion and rhino) and a handful of ungulates, the giraffe is not in demand as a trophy. Revenue from legal hunting is therefore limited.

Ecological

DID YOU KNOW?

The Romans believed that the giraffe was part camel and part leopard, hence the scientific name *camelopardalis*. However, their lack of ferocity apparently disappointed the crowds in colosseum fighting-arenas!

Giraffe are habitat and landscape changers. Together with other large browsers, such as elephant and rhino, they open up vegetated areas and promote the growth of new forage for themselves and other wildlife.

On a finer scale, giraffe browsing stimulates shoot production in various plant species, and often functions as a valuable pollinator. For example, in areas protected from giraffe and other mega-herbivores, a decline of some *Acacia* species can be observed. This subsequently affects available food sources for other wildlife.

Giraffe also provide an essential natural landscape service by eating plant seeds and dispersing them in new areas through their droppings. The seeds' potential to germinate is enhanced once they have passed through the giraffe's digestive tract, and they are deposited with their own little fertiliser power-packs!

However, there are not only mutually beneficial relationships between giraffe and many plants, but also with some animals, especially the oxpecker. These birds have the important job of assisting giraffe to groom hard-to-reach places by removing parasitic ticks, which often infest giraffe and their wounds, and at the same time they benefit from a valuable food source.

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The Future

The Giraffe Conservation Foundation (GCF) is dedicated to a sustainable future for all giraffe populations in the wild. Working in collaboration with African governments, NGOs, universities, researchers and the IUCN SSC Giraffe and Okapi Specialist Group, GCF is developing appropriate conservation strategies for each of these populations. There is no straight-forward solution to giraffe conservation and management in Africa, but supporting and working together with partners is the key approach. Even though giraffe can only be saved in Africa, international support is important.

GCF recently developed an Africa-wide Strategic Framework for giraffe conservation, not only to guide the organisation's conservation priorities throughout the continent, but to also serve as a road-map for future conservation by all stakeholders.

GCF's continued focus includes working closely with partners to develop National Giraffe Conservation Strategies and Action Plans, initiating conservation translocations, undertaking population assessments and on targeted giraffe conservation and management efforts throughout Africa.

DID YOU KNOW?

The word 'giraffe' is believed to come from the Arab word zarafa, which means 'fast walker'.

Giraffe Conservation Foundation

The Giraffe Conservation Foundation (GCF) is dedicated to securing a future for all giraffe in Africa. GCF is the only NGO in the world that concentrates solely on the conservation and management of giraffe in the wild throughout Africa. As a Namibia-based organisation, GCF currently supports and works collaboratively with giraffe conservation initiatives in 14 countries throughout Africa, on all giraffe species and their subspecies.

As the key focal organisation for the conservation and management of giraffe in Africa, GCF uses its ever-expanding network to maintain a close working relationship with government bodies, conservation organisations, academic institutions and local communities. It provides a platform and forum for giraffe conservation and related management discussions, and helps significantly to increase awareness and education about the plight of giraffe. Importantly, GCF supports dedicated and innovative conservation and research to better understand giraffe ecology, speciation, conservation and management.

giraffeconservation.org

IUCN SSC Giraffe and Okapi Specialist Group

The International Union for Conservation of Nature's (IUCN) Species Survival Commission (SSC) Giraffe and Okapi Specialist Group (GOSG) is one of over 120 IUCN SSC Specialist Groups, Red List Authorities and Task Forces working towards achieving the SSC's vision of "a world that values and conserves present levels of biodiversity". Made up of experts from around the world, IUCN SSC GOSG leads efforts to study giraffe and okapi and the threats they face, as well as leading and supporting conservation actions designed to ensure the survival of the two species into the future.

giraffidsg.org

To support giraffe conservation in Africa:

Visit the GCF website
http://giraffeconservation.org/donate

Adopt a Giraffe
http://giraffeconservation.org/adopt-a-giraffe

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