



Barbara Hollweg

PETITION TO LIST THE GIRAFFE (*GIRAFFA CAMELOPARDALIS*) UNDER THE
ENDANGERED SPECIES ACT

April 19, 2017

by

CENTER FOR BIOLOGICAL DIVERSITY, HUMANE SOCIETY INTERNATIONAL, THE
HUMANE SOCIETY OF THE UNITED STATES, INTERNATIONAL FUND FOR ANIMAL
WELFARE, and NATURAL RESOURCES DEFENSE COUNCIL



Notice of Petition

Secretary Zinke
U.S. Department of the Interior
1849 C Street NW
Washington, D.C. 20240
exsec@ios.doi.gov

Acting Director Jim Kurth
U.S. Fish and Wildlife Service
1849 C Street NW
Washington, D.C. 20240
Jim_Kurth@fws.gov

Janine Van Norman, Chief
Branch of Foreign Species, Endangered Species Program
U.S. Fish and Wildlife Service
5275 Leesburg Pike, MS: ES
Falls Church, VA 22041
Janine_Vannorman@fws.gov

Petitioners

The Center for Biological Diversity (Center)
378 N Main Avenue,
Tucson, AZ 85701

The Center is a non-profit, public interest environmental organization dedicated to the protection of native species and their habitats through science, policy, and environmental law. The Center is supported by more than one million members and activists throughout the United States. The Center and its members are concerned with the conservation of endangered species and the effective implementation of the Endangered Species Act.

Humane Society International (HSI)
1255 23rd St., NW Suite 450
Washington, DC 20037

Humane Society International is one of the only global animal protection organizations working to help all animals—including animals in laboratories, animals on farms, companion animals and wildlife—and our record of achievement demonstrates our dedication and effectiveness. HSI: Celebrating Animals, Confronting Cruelty.

The Humane Society of the United States (HSUS)
1255 23rd St., NW Suite 450
Washington, DC 20037

The Humane Society of the United States (“HSUS”) is the nation’s largest animal protection organization. Based in Washington, DC, HSUS works to protect all animals and combat cruelty through litigation, legislation, investigation, education, advocacy, grant-making, emergency rescue missions, field work, and direct care to tens of thousands of animals. HSUS has worked for decades to improve the plight of African wildlife, including increasing Endangered Species Act (“ESA”) protection for imperiled species like elephants, lions, and chimpanzees.

International Fund for Animal Welfare (IFAW)
290 Summer Street
Yarmouth Port, MA 02675

Founded in 1969, IFAW rescues and protects animals around the world. With projects in more than 40 countries, IFAW rescues individual animals, works to prevent cruelty to animals, and advocates for the protection of wildlife and habitats.

Natural Resources Defense Council (NRDC)
40 West 20th Street
11th floor
New York, NY 10011

NRDC works to safeguard the earth—its people, its plants and animals, and the natural systems on which all life depends. We combine the power of more than two million members and online activists with the expertise of some 500 scientists, lawyers, and policy advocates across the globe to ensure the rights of all people to the air, the water, and the wild.

Authors: Mark Hofberg, IFAW; Tanya Sanerib, CBD; Masha Kalinina, HSI; Adam Peyman, HSI; Elly Pepper, NRDC; Sylvia Fallon, NRDC; Paul Todd, NRDC; Teresa M. Telecky, Ph.D., HSI; Anna Frostic, HSUS; Jeff Flocken, IFAW; Sarah Uhlemann, CBD; Shaye Wolf, CBD; Dipika Kadaba, CBD; Curtis Bradley, CBD.

Submitted this 19th Day of April, 2017

Pursuant to Section 4(b) of the Endangered Species Act (ESA), 16 U.S.C. § 1533(b); Section 553(e) of the Administrative Procedure Act (APA), 5 U.S.C. § 553(e); and 50 C.F.R. § 424.14(a), the Center for Biological Diversity, International Fund for Animal Welfare, Humane Society International, The Humane Society of the United States, and Natural Resources Defense Council hereby petition the Secretary of the Interior, through the U.S. Fish and Wildlife Service (Service), to protect the giraffe (*Giraffa camelopardalis*) as an endangered species under the Endangered Species Act, 16 U.S.C. § 1533, or alternatively if taxonomic consensus changes or the Service decides to list an entity below the species level, we request that all giraffe subspecies or distinct population segments be protected at least as threatened, with qualified subspecies or distinct population segments protected as endangered.

This Petition presents substantial scientific and commercial information indicating that the giraffe is in danger of extinction throughout all or a significant portion of its range. *See* 50 C.F.R. § 424.14(h)(1) (“substantial scientific or commercial information” refers to credible scientific or commercial information in support of the petition's claims such that a reasonable person conducting an impartial scientific review would conclude that the action proposed in the petition may be warranted). Therefore, the Secretary of the Interior, through the Service, must make an initial finding “that the petitioned action *may be* warranted.” 16 U.S.C. § 1533(b)(3)(A)(emphasis added) (The Secretary must make this initial finding “[t]o the maximum extent practicable, within 90 days after receiving the Petition”); *HSUS v. Pritzker*, 2014 WL 6946022 (D.D.C. 2014) (holding that conclusive evidence is not required to make a positive 90-day finding).

The giraffe has suffered a major reduction in population size across its range primarily due to habitat loss, commercial overutilization, and severe poaching, and such decline continues unabated. The Service has a duty to protect the iconic giraffe by listing the species as endangered under the federal Endangered Species Act, which would meaningfully contribute to giraffe conservation by strictly regulating the import, export, and interstate commerce in giraffes and their parts and products. *See* 16 U.S.C. § 1531(b),(c) (providing that federal agencies “shall utilize their authorities in furtherance of” the conservation purpose of the ESA).

Respectfully Submitted,



Tanya Sanerib
Center for Biological Diversity
(503)-544-8512



Mark Hofberg
International Fund for Animal Welfare
(202)-536-1906



Masha Kalinina
Humane Society International
(301)-258-1521



Paul Todd
Natural Resources Defense Council
(212)-727-4651

A handwritten signature in blue ink that reads "Anna Frostic". The signature is fluid and cursive, with the first name "Anna" and the last name "Frostic" clearly distinguishable.

Anna Frostic
The Humane Society of the United States
(202) 676-2333

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Executive Summary

This Petition presents substantial information indicating that the giraffe (*Giraffa camelopardalis*) is currently in danger of extinction throughout all or a significant portion of its range and meets the statutory criteria for an endangered listing under the Endangered Species Act (ESA), 16 U.S.C. §§ 1531-1544. The Petitioners—the Center for Biological Diversity, Humane Society International, The Humane Society of the United States, International Fund for Animal Welfare, and Natural Resources Defense Council—therefore petition the Secretary of the Interior and the U.S. Fish and Wildlife Service (the Service) to protect the giraffe as an endangered species under the ESA; or alternatively, if taxonomic consensus changes or the Service decides to list an entity below the species level, we request that all giraffe subspecies or distinct population segments be protected at least as threatened, with qualified subspecies or distinct population segments protected as endangered.

The ESA requires the Secretary to determine within 90 days of receiving a petition whether the petition “presents substantial scientific or commercial information indicating that the petitioned action may be warranted.” 16 U.S.C. § 1533(b)(3)(A). Such determination must be made solely on the basis of the “best scientific and commercial data available.” *Id.* § 1533(b)(1)(A). Following a positive 90-day finding, the Secretary must, within one year of receipt of the petition, complete a review of the status of the species, publish a finding of whether the petitioned action is warranted and, if so, promptly propose a rule to list the species. *Id.* § 1533(b)(3)(B). Should a rule be proposed, the Secretary has an additional year to finalize regulations protecting the species. *Id.* § 1533(b)(6)(A).

Once foreign species are listed as endangered, protection under the ESA occurs by, *inter alia*, prohibiting import, export, and interstate commerce in live animals and derivatives, 16 U.S.C. § 1538(a)(1), (c), (g), unless such activity enhances the propagation or survival of the species or is for conservation science purposes. *Id.* § 1539(a)(1)(A). Furthermore, Section 8 of the ESA provides for “International Cooperation” in the conservation of foreign species, and listing foreign species heightens global awareness about the importance of conserving the species. *Id.* § 1537. This is essential for an animal like the giraffe where the public is generally unaware of its population decline.

The Petition lays out the taxonomic status of the giraffe species, its natural history and biology, and the current status, distribution, and population trends. The Petition describes the threats facing giraffes including habitat destruction and fragmentation; overutilization through illegal hunting, legal sport hunting, and for use in international trade; disease and predation; and the inadequacy of the current regulatory mechanisms. The combination of these threats puts the conservation status of the species at risk. Listing the giraffe as endangered is necessary to prevent the decline of the species and promote its conservation both in the U.S. and in giraffe range countries, as required by law.

Taxonomy, Status, and Distribution

Currently, consensus on giraffe taxonomy is evolving. Numerous and varied recommendations exist in the scientific literature to change the longstanding taxonomy recognizing one species of giraffe (*Giraffa camelopardalis*), varying upon the weight given to morphological features,

genetic data, and biological considerations. In classifying the giraffe as vulnerable to extinction in December, 2016, the IUCN Giraffe and Okapi Specialist Group recognized one species (*Giraffa camelopardalis*) and nine subspecies: West African (*Giraffa camelopardalis peralta*); Kordofan (*G. c. antiquorum*); Nubian (*G. c. camelopardalis*); reticulated (*G. c. reticulata*); Rothschild's (*G. c. rothschildi*); Masai (*G. c. tippelskirchi*); Thornicroft's (*G. c. thornicrofti*); Angolan (*G. c. angolensis*); and South African (*G. c. giraffa*). Thus, this Petition addresses the giraffe species as a whole but, where relevant, also provides information on the nine subspecies.

Giraffes once occupied much of the savannah and savannah woodlands of Africa. Today, the species only retains a fraction of that expansive range due to human population expansion. Current giraffe range includes isolated parts of West and Central Africa, increasingly fragmented habitat in East Africa, and parts of southern Africa. According to the IUCN's most recent estimate (2016), the giraffe has undergone a 36 to 40% population decline over the past 30 years. Today, roughly 97,500 giraffes remain in Africa compared to the over 150,000 giraffes recorded in Africa in 1985/ or within the last three generations.

Threats

Giraffes have experienced severe habitat loss and fragmentation as a result of the expansion of human activities into their habitats. The conversion of native habitat to agriculture, uncontrolled timber harvest, poor land use planning, and urban expansion have all played a role in the loss and degradation of giraffe habitat.

Giraffes are hunted both legally and illegally for sport and for their parts and products. Most range countries nominally protect the species, but a lack of enforcement of local laws, in addition to civil unrest in certain parts of giraffe habitat have allowed poaching for bushmeat, bones, tail hair, and other parts to become a leading cause of giraffe mortality and major contributor to their decline. Poaching, as well as legal sport hunting, is further spurred by the international trade in giraffe parts and products, which is quantified in this Petition through original analysis of data from the Service's LEMIS database and an assessment of online sales of giraffe products. The online sales assessment and LEMIS data review show only a small part of the international trade in giraffes.

Through available LEMIS data, it is clear that the U.S. is contributing to giraffe population decline. Over the past decade, the U.S. imported 21,402 bone carvings, 3,008 skin pieces, and 3,744 hunting trophies. The original analysis presented in this Petition shows that between 2006 and 2015 (the most recent decade for which complete data are available), 39,516 giraffe specimens (giraffes, dead or alive, and their parts and derivatives) were imported to the U.S. for all purposes. This equates to a very conservative, bare minimum equivalent of at least 3,751 giraffes. The equivalent of approximately 3,718 giraffes were imported for recreational or commercial purposes, and a staggering 20,885 giraffe bone carvings were imported for commercial purposes during the period studied. Further, because the giraffe is not listed on the Appendices of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the scale of the global trade is unknown, but considering the volume of trade in other African wildlife species it is very likely to many times the size of the U.S. market alone, compounding the threat that international trade poses to this species.

Giraffes are further threatened by the proliferation of disease including the Giraffe Skin Disease (GSD), inbreeding depression in isolated populations, collisions with automobiles and airplanes, and the increased frequency and magnitude of droughts associated with climate change.

Conclusion

The “Vulnerable” classification of the giraffe by the IUCN in 2016 was a wake-up call to the world that the tallest land mammal on earth is undergoing a silent extinction due to widespread poaching, legal hunting, habitat loss and fragmentation, and other factors. With fewer giraffes left in Africa than elephants, it is imperative that we turn our attention to these unique animals before it is too late. Because the U.S. is a conservation leader and also a significant giraffe product consumer, conservation of these rare mammals can and should start here. This Petition clearly shows that the best available science and data unequivocally confirms that the giraffe meets the statutory requirements for listing as endangered under the ESA. The U.S. can end its role in the international trade of giraffe parts and products, while bringing further awareness to the rapid decline of one of the most well-recognized and celebrated icons of African biodiversity.

I) Introduction

Best known for their long necks and distinctive coat patterns, giraffes (*Giraffa camelopardalis*) are fascinating mammals that have long captured the human imagination. They are the tallest land mammals with the highest blood pressure and long tongues reaching up to 50.8 cm (20 inches) that aid in browsing on a wide variety of trees and shrubs. The past decade has seen an increase in scientific research into these mammals, which has revealed that shockingly few giraffes remain in the wild. Deemed the “silent extinction” by the head of the IUCN’s Giraffe and Okapi Specialist Group,¹ the IUCN at the end of 2016 announced that the giraffe population has suffered a 36-40% population decrease over the last thirty years. An estimated 97,560 giraffes remain in sub-Saharan Africa distributed in small populations ranging from Niger to Kenya and south to South Africa. This population decline is attributed to habitat loss and fragmentation, and overutilization of giraffes particularly for bushmeat but also for hair and in international trade ranging from bones to sport-hunted trophies. Civil unrest and a growing human population with its consequent land use changes (e.g., increased agricultural fields, mining, and logging/land clearing) have both contributed to habitat loss and the increase in illegal killing (poaching) of giraffes. Current regulatory mechanisms fail to protect giraffes as evidenced by ongoing population declines, habitat loss, and other threats.

As a significant importer of giraffes and their parts, and as a global leader in conservation, the U.S. can make a large and positive impact on the international trade of the species. An endangered listing for giraffe will help the species in a number of ways. Perhaps most importantly, it will better regulate the import to and export from the U.S. of giraffe parts (e.g., bone, skin, hair, feet, tails), sport-hunted trophies, live giraffes, etc. for commercial import/export and require enhancement authorization for trophies. This is especially important given that imports in giraffe trophies and parts have increased in recent years, with 39,516 giraffe specimens—the equivalent of at least 3,751 giraffes—imported into the U.S. between 2006 and 2015, as described in more detail in Section V.B. An endangered listing will also help regulate the interstate trade in giraffe trophies and parts, which appears to be growing with at least 1,224 giraffe parts available for sale online in the U.S. over a period of less than one month, including skeleton parts and products made from giraffe bone, hair, and skin. ESA protections will also benefit giraffe by increasing worldwide awareness of its plight and generating potential funding for scientific research and in-situ conservation of the species in range countries.

While scientists continue to unravel the genetics of giraffes and finally determining whether multiple giraffe species exist, the current taxonomic consensus supports recognizing one species of giraffe and nine subspecies. Thus, we petition for an endangered listing of the giraffe species due to the small and declining population over a significant portion of the species’ range, wide spread habitat loss and fragmentation, and overutilization of giraffe. If taxonomic consensus changes or the Service decides to list an entity below the species level, we request that all giraffe subspecies or distinct population segments be protected at least as threatened, with qualified subspecies or distinct population segments protected as endangered.

¹ As quoted in the Washington Post and other media outlets.
(https://www.washingtonpost.com/news/morning-mix/wp/2016/12/08/silent-extinction-giraffes-listed-as-a-vulnerable-species-after-30-year-population-plunge/?utm_term=.7e2dda22601b).

II) Taxonomy

Giraffe belong to the mammalian order *Cetartiodactyla* and the family *Giraffidae* (Mitchell et al., 2003). This family consists of two living genera, *Giraffa* and *Okapia*, which are both native to the African continent (ibid.). These two genera diverged from a common ancestor roughly 11.5 million years ago (Agaba et al., 2016, p. 2).

The giraffe was formally described by Linneaus in 1758 based on an earlier description of a captive giraffe in Cairo (Seymour, 2012, p. 5). Linneaus originally placed giraffe in the *Cervidae* genus along with elk and deer, but it was later reclassified to the currently used nomenclature *Giraffa camelopardis* in 1848 (ibid.). Throughout much of the 1800s, giraffes were considered to be represented by two species based on descriptions of pelage patterns from a skin collected in southern Africa and another collected in northern Africa (ibid.). As more specimens became available for scientific description, various new taxonomies were put forward including alternative species descriptions as well as subspecies descriptions (see for example de Winton, 1899; Thomas, 1901; Lydekker, 1904, 1911; Krumbeigel, 1939 as described by Seymour 2012). Eventually, the commonly accepted taxonomy settled around a single species, *Giraffa camelopardis*, and nine subspecies as described by Dagg (1971, p. 1). Although subsequent treatments have proposed additional alternatives (including East, 1999 and Grubb, 2005), Dagg (1971) has continued to remain the most commonly referenced taxonomy for the giraffe.

These early descriptions of giraffes were based primarily on morphological traits including pelage patterns and skull size including ossicone (horn like structures) measurements, as well as the geographic distribution of this morphological variation across the African continent (Lydekker, 1904, 1911; Dagg, 1971; East, 1999; Grubb, 2005). More recently, genetic analyses have added to morphological data to further inform the possible taxonomy of giraffes (Hassanin, et al., 2007, p. 267; Brown et al., 2007, p. 3; Brenneman et al., 2009, p. 721; Fennessy et al., 2013, p. 636; Bock et al., 2014, p. 1; Fennessy et al., 2016, p. 1; Bercovitch et al., 2017, p. 1). In 2007, Hassanin et al. sequenced mitochondrial DNA from 23 individuals across six of the various subspecies' range. The authors continued to recognize the previously described subspecies, but did suggest redefining the geographical separation between the western *G. c. peralta* and the central *G. c. antiquorum* subspecies. Similarly, Bock et al. (2014, p. 10) used mitochondrial DNA sequences from 161 individuals across eight of the described subspecies and found strong genetic structuring between subspecies, but did not propose a new taxonomy. They did however propose refining the geographic limits between the Angolan *G. c. angolensis* and the South African giraffe, *G. c. giraffa*. Their results indicated that the range of the South African giraffe may extend further north than previously thought to include several populations of giraffe in Botswana, Namibia, Zambia, and Zimbabwe that were historically considered Angolan (Bock et al., 2014, p. 2; see also Brenneman et al., 2009, p. 721).

Brown et al. (2007, p. 3) sampled six of the nine subspecies described by Dagg (1971) and found clear genetic differentiation between all six subgroups based on both mitochondrial DNA sequences as well as 14 nuclear microsatellite loci. In addition, Brown et al. (2007, p. 7) found a near absence of hybrids even between parapatric subspecies. The combination of genetic and phenotypic differentiation along with the absence of hybridization led the authors to conclude that "the giraffe might represent more than one species." The authors suggest recognizing the six subspecies that they sampled as "evolutionarily significant units if not species" (Brown et al.,

2007; p. 57) and they suggest that additional taxonomic units could be recognized if the remaining described subspecies were also sampled.

The lack of hybridization between the recognized subspecies of this highly mobile and transient animal is striking and suggests both a history of separation and the presence of pre-mating isolating mechanisms. Subspecies are expected to demonstrate some level of introgression, or genetic exchange. However, Bock et al. (2014, p. 9) identified clear matrilineal structuring of distinct clades and limited evidence for haplotype sharing between subspecies indicating very little to no genetic exchange between subspecies. In fact, Bock et al. (2014, p. 8) suggest that the few individuals whose haplotypes differed from their assigned subspecies could be attributable to human translocation or misidentifications. Brown et al. (2007, p. 3) also found strong genetic subdivisions between described subspecies using both mitochondrial DNA sequence as well as nuclear microsatellites. The authors theorized that behavioral isolation such as assortative mating based on pelage patterns of geographically proximate giraffes could explain these strong subdivisions (ibid.). This strong genetic structuring and near lack of hybridization even among parapatric subspecies lends support for the possible recognition of additional species within the giraffe complex.

Based on the genetic data from Hassanin et al. (2007, p. 266) and Brown et al. (2007, p. 3), Groves and Grubb (2011) superimposed their morphological data to suggest the recognition of eight distinct species of giraffe. Finally, most recently, a genetic study based on more extensive sampling of all nine described subspecies asserted that giraffe are actually composed of at least four different species and five subspecies (Fennessy et al., 2016, p. 2). The authors examined mitochondrial DNA sequence data as well as nuclear intron sequence data and discovered deeply structured genetic groups. This newly proposed taxonomy, however, is still subject to scientific debate (see Bercovitch et al., 2017).

A variety of different taxonomies have been proposed to describe giraffe over the past several centuries and even the last few decades. The lack of consensus on this topic largely has to do with the fact that each individual study has been based on different, and often incomplete, sampling of populations as well as the examination of different types of data. Although Fennessy et al. (2016, p. 2) presents one of the most extensive studies to date both in terms of individuals, populations, and genetic sampling, there is still some dispute as to whether all of the populations, or putative subspecies, were sampled adequately (Bercovitch et al., 2017, p. 1). Additionally, Fennessy et al. (2016, p. 5) largely relies on molecular markers that help to distinguish differentiation at the species level and above, but may not, for example, be adequate for distinguishing below species level differentiation at the subspecies and population level. Finally, Fennessy et al. (2016, p. 2) largely ignore other taxonomically informative data such as geography, ecology and morphology.

Given the ongoing investigations into the taxonomy of giraffe, the 2016 IUCN giraffe assessment concluded that, “Until an extensive reassessment of the taxonomic status of giraffes is completed . . . it is premature to alter the taxonomic *status quo*” (Muller et al., 2016; p. 1). The authors write that “[t]he IUCN SSC Giraffe and Okapi Specialist Group (GOSG) currently recognizes a single species, *Giraffa camelopardalis*” and that “[n]ine subspecies of Giraffes are currently recognized” (ibid., p.1). This consensus statement is significant as the specialist group is made up of many of the leading researchers on giraffe taxonomy including several who have proposed alternative and competing taxonomies.

Therefore, while the precise taxonomy of giraffe at the species and subspecies level remains a topic of active scientific research and debate, the consensus scientific opinion from the leading international giraffe experts is to recognize one species, *Giraffa camelopardis*, with nine subspecies: West African (*G. c. peralta*); Kordofan (*G. c. antiquorum*); Nubian (*G. c. camelopardalis*); reticulated (*G. c. reticulata*); Rothschild's (*G. c. rothschildi*); Masai (*G. c. tippelskirchi*); Thornicroft's (*G. c. thornicrofti*); Angolan (*G. c. angolensis*); and South African (*G. c. giraffa*) (Dagg, 1971; Dagg & Foster, 1976). Accordingly, this is the taxonomy that we follow in this petition and that we request the Service evaluate in their finding.

III) Natural History and Biology

A) Morphology

Giraffes are best known for their long necks, long legs, long dark tongues, and distinctive coat patterns. Their necks and tongues enable them to reach and process forage that few other mammals can access (Pretorius et al., 2015, p. 1; Simmons & Altwegg, 2010, p. 6-7), but their neck length may also have been sexually selected because it increases the likelihood of success among males in competition for dominance and access to females (Simmons & Scheepers, 1996, p. 771-72). Giraffes' coats and their unique patterns may help them identify kin (Bercovitch & Berry, 2013, p. 4 (Herd Composition)).




Giraffes also have long legs and are the tallest land mammal, with males and females averaging 5.3 meters and 4.3 meters respectively (Nowak, 1999, in Seymour, 2001, p. 71). Males weigh roughly 1,200 kg and females roughly 830 kg (Owen-Smith, 1992, in Seymour, 2001, p. 71). Due to their height, giraffes have the highest blood pressure of any land mammal. Their height also poses challenges for drinking water or reaching resources on the ground because their necks do not bend low enough to reach land. As a result, giraffes kneel or splay their legs to reach the ground or water (Seeber et al., 2012, p. 1). Giraffes have special physiological adaptations to regulate blood flow to the brain depending upon the height of the head to ensure they do not pass out while bending down (Brondum et al., 2009, p.1058-59). They are most vulnerable to predation when reaching to the ground because of their inability to kick, which is their primary defense (Periquet et al., 2010, p. 670; Seeber et al., 2012, p. 1).





Giraffes are born with their ossicones (a morphological feature that is akin to horns but unique to giraffids and also referred to as parietal horns). The ossicones only fuse to their skull when they reach sexual maturity (Davis et al., 2011, p. 6). Adolescent male giraffes have hair on their ossicones that wears off leaving adult males with bald ossicones while female's ossicones have hair. Giraffes also have median ossicones or bumps in the middle of their foreheads and may have small ossicones on the back of the skull called occipital ossicones (Spinage, 1968, p. 55-58).



As detailed above, Dagg (1971) classified nine separate subspecies of giraffe based on morphology and, until recently, this classification was the most frequently consulted for the status of giraffe taxonomy (Dagg, 1971, p. 1; Seymour, 2012, p. 6). The nine species have been delineated based on coat pattern, head shape, and ossicones. Table 1 describes morphological

differences in each of these subspecies relating to the coat pattern (or pelage) and differences in ossicones and skull shapes.

Table 1: Giraffe subspecies differences in morphology (Seymour, 2001).

Subspecies	Coat Pattern	Distinguishing features
West African giraffe (<i>G. c. peralta</i>)		<p>Body spots are large coarsely divided lobes. Spots extend down the legs beyond the hocks.</p> <p>Parietal ossicones diverge and are more erect compared to other subspecies. Males have a well-developed median ossicone and females have a bony structure over the frontal bones. (Seymour, 2001, p. 52).</p>
Kordofan giraffe (<i>G. c. antiquorum</i>)		<p>Spotting is similar to <i>G. c. camelopardalis</i> but spots are smaller and less regular. Spotting is present on the insides of the legs and sometimes extends below the hocks.</p> <p>Males have a median ossicone. (Seymour, 2001, p. 51).</p>
Nubian giraffe (<i>G. c. camelopardalis</i>)		<p>Chestnut colored body spots are smooth and strongly defined. The belly is free of spotting, while the sides of the head are spotted.</p> <p>Males have a developed median ossicone. (Seymour, 2001, p. 51).</p>

<p>reticulated giraffe (<i>G. c. reticulata</i>)</p>		<p>Large spots are reddish-brown, well-defined, polygonal, and separated by a network of white lines.</p> <p>Males have a median ossicone. (Seymour, 2001, p. 53).</p>
<p>Rothschild's giraffe (<i>G. c. rothschildi</i>)</p>		<p>Large dark body spots usually have complete margins, with spots tending to break up with radiating lines inside the dark spots.</p> <p>The occipital ridge develops into paired occipital ossicones which may be individually variable. Males have a well-developed median ossicone. (Seymour, 2001, p. 53).</p>
<p>Masai giraffe (<i>G. c. tippelskirchi</i>)</p>		<p>Body spots are can be reticulate as well as stellate, and intermediate, and leg spots continue down to the hooves.</p> <p>The males typically have a median ossicone, but the presence is individually variable. (Seymour, 2001, p. 54).</p>
<p>Thornicroft's giraffe (<i>G. c. thornicrofti</i>)</p>		<p>Body spots are slightly stellate. Neck spots are typically elongated, while legs may be fully spotted or uniformly colored.</p> <p>Males have little developed and unobtrusive median ossicones. (Seymour, 2001, p. 54).</p>

<p>Angolan giraffe (<i>G. c. angolensis</i>)</p>		<p>Large brown body spots have slightly notched edges. Spots on the neck and rump are broken into smaller spots. Spotting is present on the legs and lower half of face, and a small white ear patch is present.</p> <p>Males are two-ossiconed. (Seymour, 2001, p. 51).</p>
<p>South African giraffe (<i>G. c. giraffa</i>)</p>		<p>Dark body spots with some fine projections occur on a tawny ground color. Spotting is present on legs and decreases in size further down the legs.</p> <p>The males do not have a well-developed median ossicone. (Seymour, 2001, p. 52).</p>
<p><i>Coat pattern images by Amada44/Wikipedia, CC-BY-SA</i></p>		

B) Behavior

Giraffes are social animals and non-territorial in nature (Van der Jeugd & Prins, 2000, p. 19; VanderWaal et al., 2014, p. 23). Their ranges vary in size depending upon available habitat and food resources (McQualter et al., 2015, p. 100). Giraffes move through their range usually in herds. Giraffe herds were long thought to be casual associations but recent research indicates that they live in fission-fusion societies such as elephants and other species (Bercovitch & Berry, 2013, p. 6 (Herd Composition)). Researchers are just beginning to investigate whether giraffes vocally communicate with one another, as is common in fission-fusion societies (Baotic et al., 2015, p. 2-3). Recent work by Baotic et al. (2015, p. 8-9) documented that giraffes engage in a low-frequency, highly structured hum at night, which may provide a window into giraffe communication.

Historically, large herds of 20-30 animals were commonly seen and, while herds of over 50 giraffes can occasionally still be seen today in open areas, smaller herds are most common (Muller et al., 2016, p. 5). Bercovitch and Berry (2013, p. 6 (Herd Composition)) found that giraffe herds typically have five to six animals but size varies depending upon resource availability. Herds of females are more common than female-male groupings or male-male groupings (ibid.). The authors have shown that giraffe herds are more often based on lengthy social associations, often of kin or closely related giraffes (ibid., p. 6-7). Females share responsibilities for caring for young giraffes (allomothering) with related and unrelated giraffes

(ibid.). Giraffes born around the same time as each other to the same cohort form strong bonds and often will remain in herds together (Bercovitch & Berry, 2013, p. 4 (Age Proximity). The oldest adult female, or matriarch, is mostly likely the leader of a giraffe herd (Berry & Bercovitch, 2014, p. 179).

Male giraffes tend to be more solitary upon leaving their natal herds (Bercovitch et al., 2006, p. 314). To prepare for dominance battles, young males engage in sparring and duels involving intertwining of necks as each opponent assesses the other's strength (called necking) (Pratt & Anderson, 1982, p. 486; Coe, 1967, p. 315). When males are older they may engage in necking or more aggressive fighting that entails knocking heads and tackling each other with their ossicones. The fighting usually ends when the losing opponent walks away leaving the winner to establish dominance (ibid., p. 317, 320).

Giraffes browse on a very wide number of different types of trees and scrubs (Dagg & Foster, 1976; Pellew, 1983; Fennessy, 2009, p. 320). Females spend a large part of the day and some of the night browsing, while males browse and search for females. Giraffes spend around 13 hours per day browsing and roughly 4.5 hours a day ruminating (Mitchell et al., 2015, p. 125).

Giraffes can “sit” with their feet tucked under the body while the head remains upright. Actual sleep consists of very short naps during which time the giraffe curves its neck and lays its head on its flank (Pellew, 1984, p. 65).

C) Reproduction

Female giraffes give birth throughout the year (Dagg & Foster, 1972, p. 9). Pregnancy lasts about 15 months, and generally there are two-year intervals between births (Bercovitch & Berry, 2009, p. 535). First parturition occurs when the female is between five and seven years old (ibid.; Bercovitch & Berry, 2015, p. 207). Males reach sexual maturity at seven to eight years of age (Bercovitch & Berry, 2012, in Dagg, 2015, p. 144). Males travel extensively to investigate and detect females receptive to mating (Bercovitch et al., 2006, p. 315). To determine which female is ready for courting and mating, male giraffe stimulate female urination and will sample the females' urine (flehmen), which is followed by attempts to mount females in estrus (Leuthold, 1979, p. 30).

When giving birth, the female stands letting the calf fall to the ground (Dagg, 2015, p. 136). Female giraffes typically give birth to just one calf at a time with an average calf weighing five kg and with an average height of 1.8 m at birth (Dagg & Foster, 1982 in ibid.). The calf is able to stand within the first twenty minutes and can start suckling about an hour after birth (Kristal & Noonan, 1979, p. 105). Giraffes are most vulnerable to predation during the first year of life, although predation remains a threat throughout a giraffe's life (Strauss & Packer, 2013, p. 134). Bercovitch and Berry (2009, p. 538) concluded that reproductive rate is not as important as the survival of calves and longevity in terms of reproductive success. Mothers may leave their young in a cluster called a crèche or nursery to protect the calves from predation while they feed (Strauss & Packer, 2013, p. 134; Young & Isbell, 1991, p. 80). Young giraffes can be weaned as early as one month, although they may suckle for much longer (Foster & Dagg, 1972, p. 8).

D) Feeding and Ecology

Giraffes are browsers, spending between 40 to 85 percent of their time feeding primarily on new shoots, leaves, twigs, fruit, and grasses (Ciofolo & Pendu, 2002, p. 191; Pellew, 1984, p. 62; Zinn et al., 2007, p. 124). Giraffes forage varies largely depending on the time of the year and the giraffe's location. Males browse at a higher feeding height than females (O'Connor et al., 2015, p. 190). Due to their height, elephants are the only other mammals that compete with giraffes for food at the tree level; however giraffe compete with kudu and impala at the shrub level of habitats (Pellew, 1984, p. 59; Sauer et al., 1977, p. 58). Giraffes generally feed on succulent vegetation and are thought to be able to live for extended periods without fresh water although they will drink water when it is available (Foster & Dagg, 1972, in Dagg, 2015, p. 15).

Apart from acacia species, giraffes consume a variety of vegetation types and have been found to eat up to 93 different species of trees, scrubs, and plants (Ciofolo & Pendu, 2002, p. 187; Mueller et al., 2016, p. 6; Parker & Bernard, 2005, p. 207). Giraffes have been observed licking soil near termite mounds—likely for their high salt content—and may chew on bones (Ciofolo & Pendu, 2002, p. 187).

E) Habitat Requirements

Giraffes can be found throughout sub-Saharan Africa but are primarily located in savanna and woodland habitats (Mueller et al., 2016, p. 6). Giraffes can have large home ranges where they encounter a wide variety of vegetation types (Skinner & Smithers, 1990, in Parker & Bernard, 2005, p. 207). There are differences in habitat preferences between sexes due to males preferring habitats offering taller browse, while females select habitats with lower browse (Pellew, 1984b, p. 62).

Giraffes do not need to drink water every day (Mueller et al., 2016, p. 6), but tend to stay in areas near rivers especially during the dry season because these areas offer permanent food and water supply (Fennessy, 2004, p. 199; Leuthold & Leuthold, 1978, p. 18). Giraffes also tend to avoid areas where predators, especially lions and leopards, may be located and prefer open scrub and open woodlands as habitats less likely to contain predators (Thaker et al., 2011, p. 403). Giraffes are vulnerable to predators when drinking water and maintain a high level of vigilance for predators when at watering holes (Creel et al., 2014, p. 9; Periquet et al., 2010, p. 670).

IV) Population Status and Distribution

A) Giraffe (*Giraffa camelopardalis*)

1) Distribution

The historic distribution of *Giraffa camelopardalis* is thought to include much of the semi-arid savannah and savannah woodlands of Africa (Dagg, 1971, p. 1; East, 1999, p. 99). Giraffes today are found south of the Sahara and only maintain a fraction of their range due to human population expansion and increased aridity (Muller et al., 2016, p. 2; Dagg, 1971, p. 1). In West Africa, giraffes historically ranged from Senegal to Lake Chad, but now only a small population

of the West African giraffe (*G. c. peralta*) remains in Niger (Suraud et al., 2012, p. 577). In Central Africa, giraffes remain in some protected areas and their surrounds in southern Chad, northern Cameroon, northern Central African Republic (CAR), South Sudan, and northeastern Democratic Republic of the Congo (DRC) (Muller et al., 2016, p. 2). In East Africa, the giraffe range has been severely reduced in Ethiopia, Somalia, South Sudan, and Uganda, but has remained relatively stable in Kenya and Tanzania (East, 1999, p. 97-98). An isolated, but stable, population of Thornicroft's giraffe (*G. c. thornicrofti*) persists in northeastern Zambia (Du Raan et al., 2015, p. 7; East, 1999, p. 98). In southern Africa, giraffes retain much of their range in Namibia, Botswana, South Africa, and Zimbabwe, but were severely reduced or even extirpated in Angola and Mozambique (East, 1999, p. 98-99). Giraffes have been translocated into protected areas in several countries both within their native range (northeastern South Africa, Kenya, Uganda, Mozambique, Angola, northeastern Zambia, and others) and outside their range (parts of South Africa, southwestern Zambia, Swaziland, and Rwanda).

Map 1 Current Range of Giraffe



2) Population Status

In 2016, the IUCN Red List of Threatened Species updated its assessment of *Giraffa camelopardalis* to “Vulnerable,” citing an ongoing population decline between 36% and 40% over the last 30 years or three generations (Muller et al., 2016, p. 1). The previous IUCN assessment, conducted in 2010, considered the species of “Least Concern,” but two subspecies (*G. c. peralta* and *G. c. rothschildi*) were assessed as “Endangered” in 2008 and 2010 respectively (Muller et al., 2016, p. 1-2; Shorrocks, 2016, p. 40).

Historic estimates of giraffe population sizes show a precipitous population decline at the species level. The IUCN Species Survival Commission (SSC) Giraffe and Okapi Specialist Group and the Giraffe Conservation Foundation (GCF) estimate that giraffes numbered between 151,702 and 163,452 in the 1980s (Muller et al., 2016, p. 4). East (1999, p. 100) estimated that there were approximately 141,000 giraffes in the wild in the 1990s. The IUCN’s most recent (2015) estimate places the giraffe population at 97,562 individuals (Muller et al., 2016, Table 1). And while the overall population is trending downward, the trends vary significantly at regional and subspecies levels.

B) West African Giraffe (*Giraffa camelopardalis peralta*)

1) Distribution

The West African giraffe subspecies (*G. c. peralta*) formerly ranged from Senegal to Lake Chad in savannah zones including Burkina Faso, Guinea, Mali, Nigeria, Niger, and other West African countries (East, 1999, p. 99). Due to anthropogenic pressures including habitat loss, fragmentation, and overexploitation, only a small population remains in the arid Sahelian scrubland of southwestern Niger (Marais et al., 2014, p. 1 (Niger)).

2) Population Status

Since the Niger population plummeted to fewer than 50 giraffes in 1996, the Government of Niger has strictly protected the population by increasing enforcement of laws against hunting giraffe and improving community awareness (Suraud et al., 2012, p. 577). As a



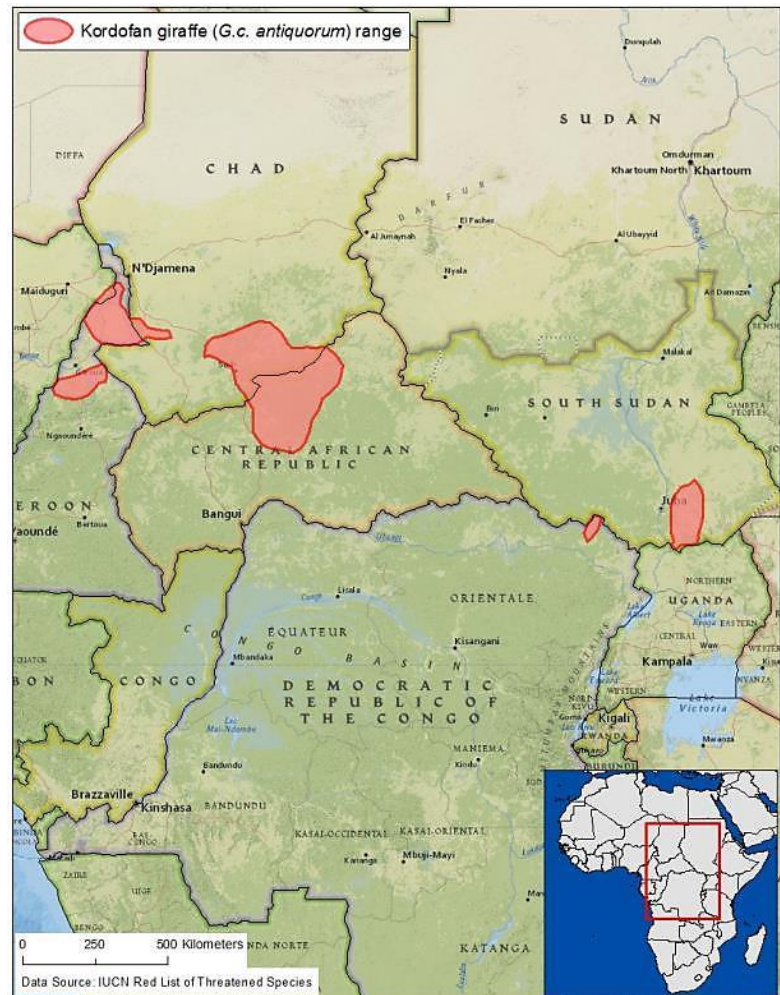
result, the population has seen very little poaching and steady growth in recent years (ibid.), with an estimated 220 giraffes in 2009, 310 giraffes in 2011, and 403 giraffes in 2013 based on aerial surveys (ibid.; Marais et al., 2014, p. 4-5 (Niger)). This high growth rate may be unsustainable once the population hits carrying capacity due to lack of habitat and human encroachment (Suraud et al., 2012, p. 581). The IUCN recognized the subspecies as “Endangered” in 2008 (Fennessy & Brown, 2008). Fennessy et al. (2016, p. 2) estimates about 400 West African giraffes remain, making this subspecies one of the most imperiled despite its recent growth.

C) Kordofan Giraffe (*Giraffa camelopardalis antiquorum*)

1) Distribution

The Kordofan giraffe subspecies’ (*G. c. antiquorum*) former range includes a large swath of the open savanna woodlands of Central Africa from northern Cameroon through central and southern Chad, CAR, South Sudan, and northern DRC (East, 1999, p. 96-97).² Human activities including development, agriculture, and logging have restricted Kordofan giraffe range to isolated protected areas (ibid.).

The Kordofan giraffe is presently found in the northern savannah of the Central African Republic and across the border into southern Chad, primarily in Zakouma National Park (Marais et al., 2012, p. 1 (CAR); Marais et al., 2014, p. 3 (Chad)). This subspecies is also found in the northern extremes of Cameroon, mostly in Waza National Park (Marais et al., 2013, p. 3 (Cameroon)). A small, isolated population also resides in DRC’s Garamba National Park and adjacent hunting reserves bordering South Sudan (Marais et al., 2013, p. 1 (DRC)). In South Sudan, giraffe are found in Boma National Park and other protected areas towards the southern extent of the country, although it is not known if this population is *G. c. antiquorum* or another species (Marais et al., 2012, p. 4 (South Sudan)).



² East (1999) referred to both *G. c. antiquorum* and *G. c. peralta* as western giraffe, but *G. c. antiquorum* is now considered Kordofan giraffe (Marais et al., 2013, p. 2 (Cameroon)).

2) Population Status

The IUCN's 2016 assessment of *G. c. antiquorum* estimated 3,696 individuals between 1975 and 1986 (Muller et al., 2016, p. 5). The assessment estimates that as of 2016, the total population is approximately 2,000 individuals, translating to a 46% decline over the last three to four decades (ibid.).

In the CAR, the Kordofan giraffe population has declined extremely rapidly despite suitable landscape and low human population due to bushmeat hunting and trade (Marais et al., 2012, p. 3 (CAR)). In 1985, it was estimated that 1,757 Kordofan giraffes resided in the country (ibid.), but a 2010 aerial survey of wild mammals in the CAR's northern protected areas estimated only 162 Kordofan giraffes remain (Bouche et al., 2012, p. 7005).

In Chad, Kordofan giraffe formerly occurred widely in the central and southern parts of the country, but now survive primarily in Zakouma National Park where a 2014 aerial count found 934 individuals (Marais et al., 2014, p. 3 (Chad)). Zakouma National Park is managed by African Parks (African Parks, 2016) and the GCF determined that this population seems stable and relatively well protected (Marais et al., 2014, p. 3 (Chad)). Any populations outside of Zakouma National Park are small and vulnerable (ibid.).

In Cameroon, Kordofan giraffes formerly occurred throughout the northern savannah woodlands and Sahel zone (East, 1999, p. 96).³ However, illegal hunting, conflict, population growth, and habitat destruction have restricted giraffes to a main population in Waza National Park and minor populations in other northern protected areas (Marais et al., 2013, p. 2 (Cameroon)). GCF's 2013 assessment of Cameroon giraffes estimates that fewer than 660 remain, with about 600 in Waza National Park and about 50 in other parks (ibid., p. 3).

In the DRC, giraffes formerly occurred throughout the northern Congo savannas (Marais et al., 2013, p. 3 (DRC)). Currently, giraffes are restricted to Garamba National Park and surrounding hunting reserves (ibid., p. 4). As recently as the early 1990s, there were approximately 350 giraffes in the park (ibid., p. 3). However, following years of conflict and illegal hunting in the region, a 2012 aerial count of the park and surrounding hunting reserves counted only 22 giraffes (Bolaños, 2012, p. 9). Bolaños states that this may be a moderate undercount, but it is clear that giraffe numbers in the area have fallen precipitously (ibid., p. 26-27). The GCF's 2013 assessment of DRC giraffe estimates that less than 80 remain in the entire country (Marais et al., 2013, p. 4 (DRC)).

In South Sudan, giraffes were common throughout what was then southern Sudan, with Kordofan giraffe occurring west of the Nile River (East, 1999, p. 97). As recently as 1980, there were an estimated 9,028 giraffes in Boma National Park and several thousands in other parks (Fryxell, 1980, in Marais et al., 2012, p. 3 (South Sudan)). Presently, there is only one known major population of giraffe in the country, found in Boma National Park, consisting of fewer than 450 individuals (Marais et al., 2012, p. 4 (South Sudan)). There is uncertainty over whether this population is Kordofan or Nubian giraffe (ibid.).

³ East (1999) referred to both *G. c. antiquorum* and *G. c. peralta* as western giraffe, but *G. c. antiquorum* is now considered Kordofan giraffe (Marais et al., 2013, p. 2 (Cameroon)).

In summary, about 2,000 Kordofan giraffes remain when adding up the country by country estimates, with potentially 450 more depending on the subspecies of the South Sudanese population. In all range countries, this subspecies has seen a marked decline due to conflict, illegal hunting, and habitat degradation.

D) Nubian Giraffe (*Giraffa camelopardalis camelopardalis*)

1) Distribution

The Nubian giraffe subspecies (*G. c. camelopardalis*) historically occurred throughout South Sudan, southern and northeastern Sudan east of the Nile river, and through the western and southern lowlands of Ethiopia to the southwestern savannas of Eritrea (East, 1999, p. 97). Currently, the subspecies occurs in remnant populations in the far west of Ethiopia and potentially in east South Sudan; the population there is presumed to belong to either the Nubian or Kordofan subspecies (Marais et al., 2013, p. 3 (Ethiopia); Marais et al., 2012, p. 4 (South Sudan)). Giraffes are presumed to have been extirpated from Eritrea (Marais et al., 2014, p. 2 (Eritrea)).



2) Population Status

The IUCN's 2016 assessment of *G. c. camelopardalis* estimated that Nubian giraffes numbered 20,577 between 1970 and 1982 (Muller et al., 2016, p. 5). The assessment estimates that as of 2015, the total population was approximately 650 individuals, translating to a 97% decline over the last 35 years (ibid.).

In South Sudan, giraffes were common throughout what was then southern Sudan, with Nubian giraffe occurring east of the Nile River (East, 1999, p. 97). As recently as 1980, there were an estimated 9,028 giraffes in Boma National Park and several thousands in other parks (Marais et al., 2012, p. 3 (South Sudan)). At present, there is only one known major population of giraffes of fewer than 450 individuals, found in Boma National Park (ibid., p. 4). There is uncertainty over whether this population is Kordofan giraffe or Nubian giraffe (ibid.).

In Ethiopia, Gambella National Park is home to the country's primary remaining population of Nubian giraffes, which consists of approximately 90 individuals as of a 2009 aerial count (Marais et al., 2013, p. 3 (Ethiopia)). Several small populations of 20 individuals or fewer are thought to remain in Omo National Park and Tama Wildlife Reserve, but controversy remains about whether they are still there and what subspecies they are (ibid., p. 3-4; Renaud, 2007, p. 13)

In summary, about 650 Nubian giraffes remain in the wild, making this subspecies one of the most imperiled.

E) Reticulated Giraffe (*Giraffa camelopardalis reticulata*)

1) Distribution

The reticulated giraffe subspecies' (*G. c. reticulata*) historic range includes the southern lowlands of Ethiopia and Somalia, sweeping south into northern Kenya, bounded by the Tana River to the south (East, 1999, p. 97). Currently, *G. c. reticulata* maintains much of its historical range in Kenya, but overexploitation and habitat disruption have reduced giraffe range in Ethiopia to the protected areas bordering Kenya, and have probably led to extirpation in Somalia (Marais et al., 2013, p. 3 (Ethiopia); Marais et al., 2013, p. 2 (Somalia)).

2) Population Status

The IUCN's 2016 assessment of *G. c. reticulata* estimated that the subspecies numbered anywhere between 36,000 and 47,750 in the 1990s (Muller et al., 2016, p. 5).

The assessment estimates that as of 2016, the current total population is approximately 8,661 individuals, translating to a 77-82% decline over the last 20-30 years (ibid.).

In Kenya, historically large populations of reticulated giraffe have been reduced due to habitat destruction, fragmentation, and increased bushmeat consumption (Marais et al., 2013, p. 2



(Kenya)). As recently as the early 1990s, it was estimated that about 27,540 reticulated giraffes resided in northern Kenya—mostly outside of protected areas (East, 1999, p. 95). More recent estimates show devastating losses. In Laikipia County, aerial surveys conducted between 2001 and 2012 estimate that the reticulated giraffe population declined by 36%, from 1,727 individuals in 2001 to 1,105 individuals in 2012 (Kinnaird et al., 2012, p. 6). In Garissa County, a 2011 aerial survey estimated 1,666 giraffe remained (King et al., 2011, p. 7). A 2013 GCF assessment collated recent aerial surveys of reticulated giraffe habitats in Kenya, including protected and private areas. The analysis estimated that fewer than 6,500 giraffes remain (Marais et al., 2013, p. 10 (Kenya)).

In Ethiopia, it is uncertain whether a small reticulated giraffe population still remains; GCF estimated in 2013 that anywhere from zero to 100 reticulated giraffe remain in the country (Marais et al., 2013, p. 4 (Ethiopia)).

In Somalia, all giraffe populations are presumed to be extirpated as of 2013 (Marais et al., 2013, p. 2 (Somalia)).

In summary, combining the most recent estimates of reticulated giraffe populations leads to a total estimate of fewer than 9,000 individuals remaining, almost entirely in northern Kenya. The GCF has since updated their population estimate to 8,660 reticulated giraffes in 2016 (Fennessy et al., 2016, p. 2) and the IUCN assessment is in agreement (Muller et al., 2016, p. 5). As recently as the early 1990s, there was, at the very least, three times that number (East, 1999, p. 95), equating to a well over 70% decline over the last two decades.

Falls population has increased, with 904 individuals estimated in 2010 (ibid.) and 757 individuals estimated in 2012 (Marais et al., 2016, p. 4 (Uganda)) based on aerial surveys. The GCF's 2016 assessment of Uganda giraffe populations estimated that 1,250 individuals currently reside in Murchison Falls (ibid.). Other smaller populations exist in Kidepo Valley National Park and Lake Mburo National Park (ibid.).

In summary, combining recent studies and surveys, it is estimated that approximately 1,700 Rothschild's giraffes remain.

G) Masai Giraffe (*Giraffa camelopardalis tippelskirchi*)

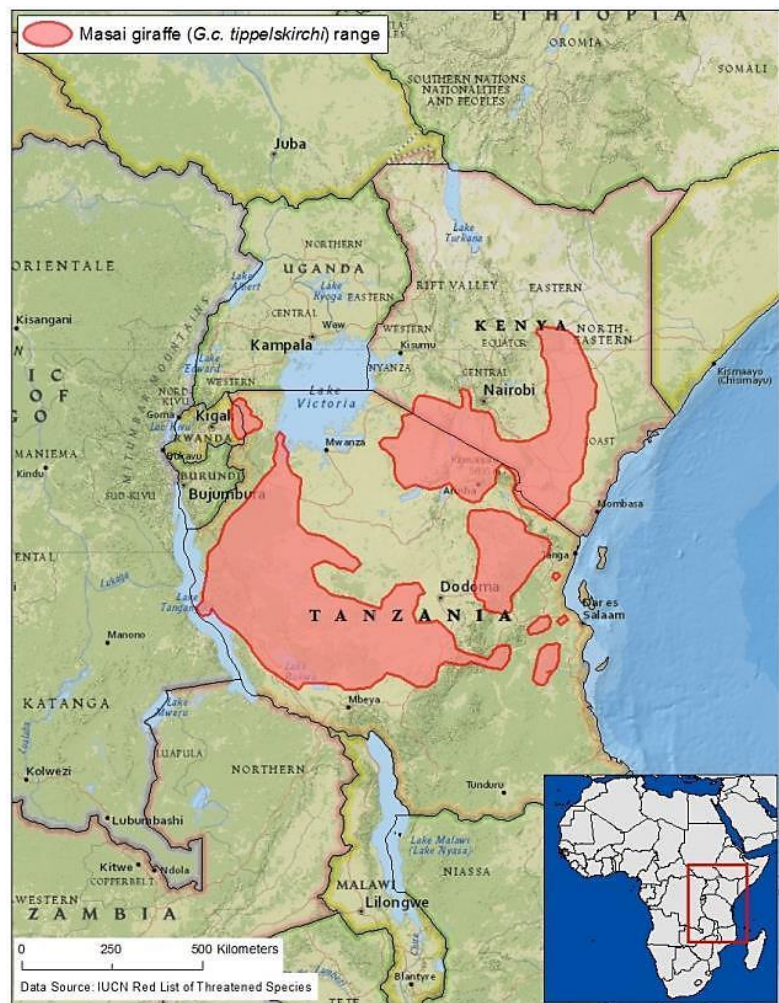
1) Distribution

The Masai giraffe subspecies (*G. c. tippelskirchi*) historically ranged across the open grasslands and woodlands of southern and eastern Kenya southwards through much of Tanzania to the Rufiji River (East, 1999, p. 98). The subspecies remains in southern Kenya and retains much of its historical range in Tanzania including the Serengeti, Tarangire, Ruaha, Kilimanjaro, and Lake Natron (East, 1999, p. 98; Okello et al., 2015, p. 160, 166). Additionally, there is an introduced population in Rwanda's Akagera National Park (Marais et al., 2012, p. 2 (Rwanda)).

2) Populations Status

The IUCN's 2016 assessment of *G. c. tippelskirchi* estimated that Masai giraffes numbered 66,449 between 1977 and 1980 (Muller et al., 2016, Table 1). East (1999, p. 95) estimated that there were 46,210 Masai giraffes in the 1990s. The IUCN assessment estimates that as of 2015, the total population was approximately 31,611 individuals, translating to a 52% decline over the last 25-28 years (Muller et al., 2016, Table 1).

In Kenya, *G. c. tippelskirchi* populations have seen sharp declines over recent decades. Kenya was home to an estimated 17,330 Masai giraffes in the late 1990s (East, 1999, p. 95), with only 2,530 individuals in protected areas. Surveys conducted in Kenya in 2010 and compiled by the



GCF in 2013 estimated that fewer than 8,000 individuals remain, primarily in the Masai Mara Ecosystem, Tsavo and Chyulu National Parks and surrounds, and the Amboseli Ecosystem (Marais et al., 2013, p. 9 (Kenya)). In the Masai Mara National Park and surrounding ranches on the Tanzanian border, several estimates show steep declines in Masai giraffe populations. Ottichilo et al. (2000, p. 206) found a 79% decline in the Masai giraffe population based on aerial survey data from 1977 to 1997. Ogotu et al. (2011, p. 4, supporting documentation) found the Masai giraffe population declined from an estimated 6,678 individuals in 1977 to 1,140 individuals in 2009, likely due to widespread illegal hunting. In Amboseli National Park and surrounding ranches, similar losses have occurred, but populations have recovered modestly from devastating droughts in the late 2000s (Okello et al., 2015, p. 171).

In Tanzania, East (1999, p. 95) estimated that in the 1990s, there were 28,860 Masai giraffes throughout the country, mostly in protected areas. East noted population reductions in much of central and coastal Tanzania as well as significant losses in the Serengeti (East, 1999, p. 98). Serengeti National Park was estimated to contain 10,750 Masai giraffes in 1975-1977, dropping to 6,673 individuals in 1988-1991 (Strauss et al., 2015, p. 512). A more recent estimate from 2008-2010 found that only 3,520 Masai giraffes remained (ibid.). Strauss et al. (2015, p. 512) estimated that Masai giraffes saw a 67%-86% reduction in density in the Serengeti from 1977 to 2010. A 2015 aerial survey of the savannah on the Kenyan border estimated only 726 Masai giraffes in the Lake Natron area and 237 in the West Kilimanjaro area by averaging dry and wet season censuses from 2010 and 2013 (Okello et al., 2015, p. 166).

In Rwanda, six Masai giraffes were introduced into Akagera National Park in 1986, and by 2012, expanded to about 100 giraffes (Marais et al., 2012, p. 2 (Rwanda)).

In summary, Masai giraffes have experienced a 52% drop in population over the previous two to three decades, from an estimated 66,449 in the late 1970s to the current estimate of 31,611 individuals (Muller et al., 2016, Table 1).

H) Thornicroft's Giraffe (*Giraffa camelopardalis thornicrofti*)

1) Distribution

Thornicroft's giraffes are entirely isolated to the Luangwa River Valley in northeastern Zambia, which includes South Luangwa National Park and surrounding areas (Du Raan et al., 2015, p. 2; Fennessy et al., 2013, p. 635-636).

2) Population Status

Estimates regarding the size of the isolated population of Thornicroft's giraffe in Zambia have varied over time, but are consistently small. In 2015, the GCF estimated the population included 300 individuals in 1980 (Du Raan et al., 2015, p. 2; Berry & Bercovitch, 2016, p. 1). East (1999, p. 95, 98) estimated that there were 450 Thornicroft's giraffes in Zambia in the early 1980s, but that the population grew to 1,160 by the 1990s.

A 2002 aerial census of the area estimated the population at 236, with 197 in the South Luangwa National Park and the remaining in the surrounding Lupande Game Management Area (Du Raan et al., 2015, p. 6). In 2011, an aerial survey of the Luangwa Valley Ecosystem estimated 407 giraffes (Du Raan et al., 2015, p. 7). A more current estimate in 2013, utilizing systematic surveys, estimated 556 individuals in the Luangwa Valley (ibid.).

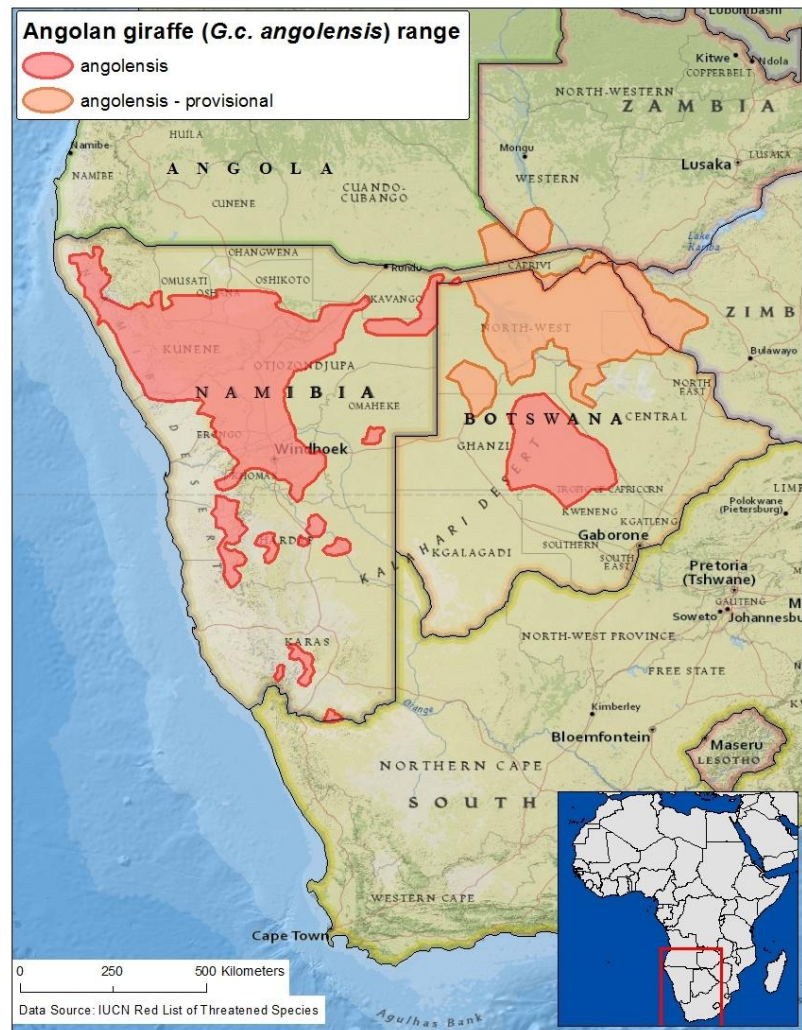
The IUCN's 2016 assessment of *G. c. thornicrofti* estimated that the population is stable at about 600 individuals (Muller et al., 2016, p. 5).



I) Angolan Giraffe (*Giraffa camelopardalis angolensis*)

1) Distribution

The Angolan giraffe subspecies (*G. c. angolensis*) historically ranged from southern Angola through Namibia and east into central Botswana (Du Raan et al., 2016, p. 3; East, 1999, p. 98-99). The Angolan giraffe has since been extirpated from Angola following years of civil unrest (Marais et al., 2013, p. 3 (Angola)). The subspecies occupies much of its former range in Namibia and Botswana (East, 1999, p. 98). In Namibia, the subspecies can be found in substantial numbers across northern Namibia in conservancies, national parks (e.g., Etosha National Park), and surrounding areas (Du Raan et al., 2016, p. 7-8). In Botswana, Angolan giraffes currently occupy the expansive Central Kalahari Game Reserve (Bock et al., 2014, p. 7). In addition, giraffe populations in northern Botswana (the Okavango Delta, Chobe National Park, and other protected lands), southern Botswana (Southern and Kweneng Districts), northeastern Namibia (Bwabwata National Park), western Zimbabwe, and southern Zambia (Sioma Ngwezi National Park) are considered Angolan giraffes but a recent genetic study suggests they may actually be South African giraffes (Bock et al., 2014, p. 7). The IUCN's 2016 assessment has provisionally retained this population status as Angolan giraffes for the purposes of its status review (Muller et al., 2016, p. 5).



2) Population Status

In Namibia, Angolan giraffes in the northern national parks and their surrounds are increasing. In northwestern Namibia, a 2013 assessment estimated 2,039 Angolan giraffes across several conservancies, showing steady increases from estimates in 2002 (922 giraffes) and 2008 (1,269 giraffes) (Du Raan et al., 2016, p. 5). In north-central Namibia, most Angolan giraffes are found in Etosha National Park and the surrounding areas and a recent survey estimated 3,293 giraffes in the park and 1,743 around it (ibid., p. 8). This is a large increase from a 1995 estimate of 1,837 giraffes in Etosha National Park (ibid., p. 6). In northeastern Namibia, the GCF estimates that

about 1,000 giraffes occur across several national parks and surrounding regions (ibid., p. 8). Besides national park land and other government protected areas, much of Namibia's giraffe population resides on private game farms with an estimated 5,832 individuals, mostly in the Erongo, Kunene, and Otjozondjupa regions (ibid., p. 9). The GCF, in its 2016 assessment of giraffe in Namibia, estimated about 12,000 Angolan giraffes reside in the country, with about half on private land (ibid., p. 10). This is an increase from just one to two decades prior when estimates ranged from 5,000 to 10,415 in the country (ibid.).

In Botswana, a 2004 country-wide census estimated about 11,700 Angolan giraffes, with Okavango Delta as the largest population (Tutchings & Fennessy, 2009, p. 4). But more recent surveys and anecdotal evidence indicate that populations of Angolan giraffes in Botswana are decreasing (ibid.). A 2012 country-wide survey estimated that 8,976 individuals inhabit the country (Statistics Botswana, 2015, p. 11). It is estimated that northern Botswana Angolan giraffe populations have dropped from more than 10,000 to fewer than 4,000 individuals in the last ten years (Bock et al., 2014, p. 2). Data from Statistics Botswana estimated only 5,440 Angolan giraffes remained in 2013 in the northernmost districts, which include the Okavango Delta and Chobe National Park (Statistics Botswana, 2015, p. 12). In central Botswana, in the Ghanzi district, which includes the Central Kalahari Game Reserve, a 2013 survey estimated only 923 Angolan giraffes (ibid., p. 14). In southern Botswana, aerial surveys reveal smaller Angolan giraffe populations in the Kweneng and Kgatleng districts (ibid., p. 18, 19).

In Zambia, there is a small population of Angolan giraffes in Sioma Ngwezi National Park (Du Raan et al., 2015, p. 8; East, 1999, p. 98), although there is controversy over the population's subspecies (Bock et al., 2014, p. 7). A 2013 aerial survey estimated 232 Angolan giraffes in the park (Du Raan et al., 2015, p. 8).

In Zimbabwe, Angolan giraffes occur in Hwange National Park and surrounding areas on the western edge of the country (Bock et al., 2014, p. 2; Crosmar et al., 2015, p. 198). This population is assumed to be Angolan giraffes but recent genetic analysis suggests it may belong to the South African subspecies (Bock et al., 2014, p. 7).

The IUCN's 2016 assessment of *G. c. angolensis* estimated that the Angolan giraffe population has increased over the last four decades from about 15,000 individuals in the 1970s to the current 2016 estimate of over 30,000 giraffes (Muller et al., 2016, p. 5). This assessment includes the giraffe populations in central Botswana and north-central Namibia (estimated by the IUCN to be 5,000 in 1970 and 13,031 in 2016), as well as the giraffe populations in northern and southern Botswana, northeastern Namibia, western Zimbabwe, and southern Zambia (estimated by the IUCN to be 10,000 in 1970s and 17,551 in 2016) (ibid.). This latter population could in fact be South African giraffes according to a recent genetic study (Bock et al., 2014, p. 7) but are provisionally included as Angolan (Muller et al., 2016, p. 5).

J) South African Giraffe (*Giraffa camelopardalis giraffa*)

1) Distribution

The historic distribution of the South African giraffe subspecies (*G. c. giraffa*) has been reported to follow the bushveld of northern South Africa east into southern Zimbabwe and southwestern Mozambique (East, 1999, p. 98-99). Current distribution includes northeastern South Africa as well as southern Zimbabwe and Mozambique on the border of South Africa (ibid., p. 99; Marias et al., 2013, p. 3 (Mozambique)). South African giraffes have also been introduced into Angola's Kissama National Park (Marais et al., 2013, p. 3 (Angola)). In addition, recent studies have indicated that giraffe populations in northern Botswana (the Okavango Delta, Chobe National Park, and other protected lands), southern Botswana, northeastern Namibia (Bwabwata National Park), western Zimbabwe, and southern Zambia (Sioma Ngwezi National Park) could be South African giraffes instead of Angolan giraffes, as previously described (Bock et al., 2014, p. 7). However, these populations will be considered to be Angolan giraffes until more evidence is collected indicating otherwise (Muller et al., 2016, Table 1). Extralimital populations of South African giraffe exist in Zambia, South Africa, and Swaziland (Bercovitch & Deacon, 2015, p. 142; Du Raan et al., 2015, p. 8; Marais et al., 2013, p. 3 (Swaziland)).



2) Population Status

Bercovitch and Deacon (2015, p. 142) estimated that as many as 30,000 South African giraffes occur in South Africa. This is a significant increase from East's estimate (1999, p. 95) that 7,880 giraffes occurred in South Africa in the 1990s following losses due to overhunting and expansion of agriculture. Most giraffes survived primarily in Kruger National Park (East, 1999, p. 99). Since then, giraffes have been reintroduced into private and protected areas throughout their

former range, as well as outside of their range, and populations have recovered (Bercovitch & Deacon, 2015, p. 142).

In Angola, it is estimated that about 20 South African giraffes resided in Kissama National Park in 2013 (Marais et al., 2013, p. 3 (Angola)). This population originates from four giraffes introduced in 2001 (ibid.).

In Swaziland, there are about 209 South African giraffes in government-owned protected areas and private establishments (Marais et al., 2013, p. 3 (Swaziland)). All Swaziland giraffes are extralimital populations and were translocated (ibid.).

Giraffes were extirpated from Mozambique by the early 1970s due to overexploitation and habitat destruction (Marias et al., 2013, p. 2 (Mozambique)). However, translocations of South African giraffes from South Africa to Mozambique's Limpopo National Park and Maputo Special Reserve have helped reestablish small populations, with 116 giraffes in Limpopo National Park and 23 giraffes in Maputo Special Reserve (ibid., p. 3). The GCF's 2013 assessment of Mozambique giraffe populations estimates that there are 146 South African giraffes in the country (ibid.).

In Zimbabwe, South African giraffes historically occurred throughout the southern part of the country, and continue to persist in private and protected areas in the southeastern Lowveld, primarily in Gonarezhou National Park where a small population remains (East, 1999, p. 99).

The IUCN's 2016 assessment of *G. c. giraffa* estimated that the South African giraffe population has increased over the last three decades from about 8,000 individuals in the late 1970s to the current 2016 estimate of 21,387 individuals (Muller et al., 2016, p. 5). This assessment does not include the giraffe populations (estimated by the IUCN to be 10,000 in 1970s and 17,551 in 2016) in northern and southern Botswana, northeastern Namibia, western Zimbabwe, and southern Zambia, which are provisionally assumed to be Angolan giraffe, but could be South African according to a recent genetic study (Bock et al., 2014, p. 7).

V) Threats

Under the ESA, the Service is required to list a species as "Endangered" if it "is in danger of extinction throughout all or a significant portion of its range" or as "Threatened" if it "is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range" based upon one or more threats or factors. 16 U.S.C. § 1532. There are five statutory listing factors that the Service must analyze for the species:

- (A) The present or threatened destruction, modification, or curtailment of its habitat or range;
- (B) Overutilization for commercial, recreational, scientific, or educational purposes;
- (C) Disease or predation;
- (D) The inadequacy of existing regulatory mechanisms; and
- (E) Other natural or manmade factors affecting its continued existence.

Id. § 1533(a)(1)(A)-(E); 50 C.F.R. § 424.11(c)(1)-(5).

Based upon an analysis of these factors, all *Giraffa camelopardalis* should be protected as an endangered species under the ESA. 16 U.S.C. § 1533(a)(1). Alternatively, the Service could list all giraffes at the subspecies or distinct population segment level as either threatened or endangered.

A) Present or Threatened Destruction, Modification, or Curtailment of its Habitat or Range

Habitat loss and fragmentation are one of the primary causes of giraffe population decline (Fennessy, 2004, p. 12; Muller et al., 2016, p. 1, 6). Indeed, giraffes have experienced severe habitat loss and fragmentation as a result of increased human settlement; expansion of agricultural activities; conversion of land to industrial plantations (e.g., sugarcane); the uncontrolled harvesting of timber and wood for various uses, including firewood, logging, and charcoal production for both personal and commercial purposes; and poor land use planning (Muller et al. 2016, p. 6; Okello et al., 2015, p. 170). This situation is exacerbated by the fact that people living in and near giraffe habitat are typically poor and compete with giraffes for resources like trees and shrubs (Marais et al., 2013, p. 1 (Cameroon); Marais et al., 2013, p. 2 (Swaziland)).

Expansive habitat is a prerequisite for healthy giraffe populations, given their relatively large home ranges—which average between 68 km² and 514 km²—and their seasonal migration patterns (Shorrocks, 2016, p. 148). However, largely as a result of habitat loss and degradation, the giraffe's range has contracted significantly over the past century (Dagg, 1971, p. 1; Fennessy, 2004, p. 14; Skinner & Smithers, 1990, p. 204-206). This has resulted in geographical isolation of local populations and some herds surviving at the edge of the species' preferred range (Fennessy, 2004, p. 1).

West African giraffes once ranged from Senegal to Lake Chad, but now only exist in approximately 15,000 km² in southwestern Niger (Fennessy & Brown, 2010, p. 2). Habitat loss and fragmentation have contributed to the West African giraffe's range contraction and subsequent population loss (Marais et al., 2014, p. 1 (Niger)).

Kordofan giraffes, which once ranged from northern Cameroon through central and southern Chad, CAR, South Sudan, and northern DRC, now have limited habitat (East, 1999, p. 96-97). In Chad, Kordofan giraffes are losing habitat to cultivation and cattle grazing (Marais et al., 2014, p. 2 (Chad)). Increasing human development, agriculture, cattle grazing, and logging are contributing to Kordofan giraffe population declines in Cameroon (Marais et al., 2013, p.1-2 (Cameroon)). In South Sudan, giraffe habitat is lost to farming, logging, and human infrastructure and development (Marais et al., 2012, p. 2 (DRC)).⁴

Nubian giraffes historically occurred in southern and northeastern Sudan and through Ethiopia's western and southern lowlands to Eritrea's southwestern savannas, but are currently only found

⁴ Giraffe in South Sudan may be Kordofan giraffe or Nubian giraffe (Marais et al., 2012, p. 4 (South Sudan)).

in Ethiopia and South Sudan (East, 1999, p. 97). In South Sudan, giraffe habitat is lost to farming, logging, and human infrastructure and development (Marais et al., 2012, p. 2 (DRC)). In Ethiopia, giraffe habitat is limited due to dense human populations and related fragmentation and loss of habitat (Marais et al., 2013, p. 1-2) (Ethiopia)).

Reticulated giraffes once ranged from the southern lowlands of Ethiopia and Somalia, sweeping south into northern Kenya, bounded by the Tana River to the south, but now are only found in northern Kenya and southern Ethiopia (East, 1999, p. 97). In Kenya, reticulated giraffes are losing habitat and migration corridors due to expanding human settlements and farmlands, as well as wood cutting, and are now largely confined to protected areas (Marais et al., 2013, p. 3 (Kenya)).

The world's only population of Thornicroft's giraffe resides in Zambia's Luangwa Valley, where habitat available to support wildlife is shrinking due to increased settlements, cultivation, traditional land claims, and uncoordinated planning by government departments (Du Raan et al., 2015, p. 3).

Historically, the Rothschild's giraffe was widespread, found in Uganda, southern Sudan, and across western Kenya (Okello et al., 2015, p. 160). However, it has been exterminated from most of its former range, with only a few small and fragmented populations in Uganda and Kenya (ibid.).

Masai giraffes, which exist primarily outside of government-protected areas, have also been eliminated in most of their former range over the last century, primarily due to anthropogenic activities (Marais et al., 2013, p. 2 (Kenya)). Changes in land use from crop farming, urbanization, and logging have led to range-wide habitat fragmentation which prevents giraffe dispersal (ibid.).

Increasing human populations and related habitat loss are also a concern for Angolan and South African giraffes (Du Raan et al., 2016, p. 1; Marais et al., 2013, p. 1 (Mozambique)).

Even Africa's national parks and sanctuaries—which were historically occupied by giraffes—have experienced severe habitat destruction impacting giraffes, mainly due to the lack of effective park management and law enforcement (Marais et al., 2013, p. 2 (Cameroon)). For example, in Angola the construction of two national roads through Kassima National Park has resulted in habitat fragmentation, shrimp farming, human encroachment, cultivation, oil production, livestock grazing, and charcoal production (Marais et al., 2013, p. 2-3 (Angola)). Most protected areas in Mozambique were invaded and occupied by local people from the surrounding areas during the Mozambican civil war (1977-1992), significantly reducing the country's biodiversity (Marais et al., 2013, p. 2 (Mozambique)). Following the Rwandan Civil War, Tanzanian and Ugandan refugees settled in much of Rwanda's Akagera National Park, negatively impacting wildlife (Marais et al., 2012, p. 1 (Rwanda)). Ethiopia, Cameroon, Somalia, and other giraffe range countries have experienced similar situations (Marais et al., 2013, p. 2 (Cameroon); Marais et al., 2013, p. 1-2 (Ethiopia); Marais et al., 2013, p. 1 (Somalia)).

As African countries continue to modernize, rapid population growth, infrastructure development, urbanization, agricultural development, deforestation, and other such activities will likely continue to escalate and negatively impact giraffes and their habitat (UNEP, 2013, p. 3, 10, 17).

B) Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

1) International Trade for Commercial, Recreational, or Scientific Purposes

As giraffes are not listed on the Appendices of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), a valuable source of information on the utilization of giraffes for commercial, recreational, or scientific purposes is the U.S. Law Enforcement Management Information System (LEMIS) trade database. The database contains import and export data compiled from U.S. Fish and Wildlife forms and Customs and Border Patrol reports, which are accumulated into an electronic database that is available to the public via Freedom of Information Act (FOIA) request.

This database can be used to determine the level of legal international trade to and from the U.S., as well as the types and sources of giraffes and their parts that are involved in trade. International trade as recorded in the LEMIS database includes commercial trade as well as trade associated with breeding, circus or travelling exhibition, education, enforcement, trophy hunting, medicinal use, personal use, reintroduction to the wild, scientific research, and zoological exhibition. By examining the documented purposes of trade, the LEMIS database can be used to evaluate the reasons behind the movement of giraffes and their parts to and from the U.S. The database also includes the source of giraffes and their parts in international trade, whether captive-bred, captive-born, illegal, ranch-raised, or wild. However, the LEMIS database does not contain information on total global trade in giraffe, total exports from range countries, or domestic use of giraffes or their parts for commercial, recreational, or scientific purposes; nor does it account for poaching and illegal trade, except where illicit international trade has resulted in a seizure by U.S. enforcement authorities. As the species is not listed on the CITES Appendices, this means that the volume of global trade in giraffes is unknown, but it is likely many times greater than the volume of U.S. trade presented in this petition.

Giraffes are over-utilized for commercial and recreational purposes. The original analysis presented in this petition shows that between 2006 and 2015 (the most recent decade for which complete data are available), 39,516 giraffe specimens (giraffes, dead or alive, and their parts and derivatives) were imported to the U.S. for all purposes (Annex A, Table 1), the equivalent of at a bare minimum at least 3,751 giraffes. This figure was derived by adding the figures for three types of specimens that likely represent one giraffe each: bodies, live, and trophies. After giraffe are hunted, their skin is usually removed in sections, leaving the skull, other bones, and body parts. Therefore in this analysis, the body or trophy is used to represent a giraffe – not the skull, skeleton, skin, or bones. However, because the majority of giraffe specimens in trade are giraffe parts (e.g., bone carvings, bones, skin pieces) and we are unable to determine how many giraffes these pieces represent, 3,751 is a very conservative estimate and the number of giraffes actually imported is likely much higher.

The most commonly-traded items were bone carvings (21,402), bones (4,789), trophies (3,744), skin pieces (3,008), bone pieces (1,903), skins (855), and jewelry (825) (see Table 2 below). Other giraffe specimens in trade include shoes (528), hair (501), small leather products (366), feet (339), large leather products (325), horn (ossicone) carvings (201), and smaller numbers of skulls, hair products, specimens, tails, skeletons, rugs, shell products, carapaces, trim, wood products (e.g. furniture), plates, genitalia, horns (ossicones), live animals, bodies, teeth, eggshells (e.g. ostrich egg products with giraffe hair affixed), ears, legs, and unspecified products (see Table 2 below).

U.S. imports of giraffes reported as bodies, trophies, and live animals (categories for which each specimen represents one individual animal) for the period of 2006 to 2015 total 3,751, including imports of 3 bodies, 4 live giraffes, and 3,744 trophies (see Table 2 below).

Table 2. Total U.S. Giraffe Imports, 2006-2015, all sources and all purposes.

Wildlife Description	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	TOTALS
Bone Carvings	2,933	4,194	1,641	2,735	1,736	233	790	1,418	1,495	4,227	21,402
Bodies	0	0	1	1	0	0	0	1	0	0	3
Bones	167	65	487	345	77	1403	350	434	775	686	4,789
Bone Pieces	1,691	2	15	9	10	2	37	7	76	54	1,903
Carapaces	38	0	0	0	0	0	0	1	0	0	39
Ears	0	0	0	0	0	0	0	0	1	0	1
Eggshells	0	2	0	0	0	0	0	0	0	0	2
Feet	18	9	22	37	45	29	69	58	23	29	339
Genitalia	0	0	2	1	0	0	0	0	2	1	6
Hair	400	2	5	1	0	1	0	81	0	11	501
Hair Products	10	0	0	2	2	0	1	0	3	100	118
Horn Carvings	0	0	0	0	0	3	0	63	48	87	201
Horns	0	0	0	0	0	2	3	0	0	0	5
Jewelry	53	66	670	0	10	0	5	9	5	7	825
Leather Products Large	2	3	6	18	32	11	11	58	76	108	325
Leather Products Small	5	4	3	1	1	3	42	147	58	102	366
Legs	0	0	0	0	0	0	0	1	0	0	1
Live	0	0	0	0	3	0	0	1	0	0	4
Plates	0	0	0	0	0	0	0	3	2	3	8
Rug	15	6	15	5	6	0	2	8	1	5	63
Shell Product	0	0	0	0	0	0	0	0	50	0	50
Shoes	0	0	0	0	0	0	0	2	8	518	528
Skeletons	0	0	0	0	0	0	0	0	0	64	64
Skins	16	22	115	18	307	9	18	22	163	165	855
Skin Pieces	50	310	85	133	34	245	62	704	465	920	3,008
Skulls	18	2	14	12	32	29	6	6	4	27	150

Wildlife Description	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	TOTALS
Specimens	1	0	0	19	0	0	50	6	0	25	101
Tails	1	0	1	15	7	6	18	7	5	5	65
Teeth	0	0	0	0	1	0	0	0	0	2	3
Trim	0	2	3	4	0	9	0	1	0	2	21
Trophies	425	372	339	405	280	328	342	408	386	459	3,744
Unspecified	10	0	0	2	1	0	0	1	2	0	16
Wood Products	0	0	0	6	0	1	0	3	0	0	10
TOTAL	5,853	5,061	3,424	3,769	2,584	2,314	1,806	3,450	3,648	7,607	39,516

Source: LEMIS data obtained from United States Fish and Wildlife Service through FOIA requests between 2006 and 2015, filtered for imports of *Giraffa camelopardalis*.

Of this trade from all sources, 39,397 giraffe specimens, reported as being from a wild source—the equivalent of at least 3,740 giraffes (adding bodies, live, and trophies)—were traded internationally for all purposes (Annex A, Table 2). Wild-sourced specimens accounted for 99.7% of specimens in trade (39,397 of 39,516). The top countries exporting wild giraffes and their parts were South Africa (31,245 specimens representing at least 2,207 giraffes) (see Annex A, Table 25), Zimbabwe (5,249 specimens representing at least 971 giraffes) (see Annex A, Table 28), Tanzania (692 specimens representing at least 1 giraffe) (see Annex A, Table 26), and Namibia (685 specimens representing at least 521 giraffes) (see Annex A, Table 23). This means that South African giraffes, Angolan giraffes, and Masai giraffes are likely most frequently in trade.

From 2006 through 2015, giraffes and their parts from the following additional sources were imported into the U.S.:

- 30 captive-bred⁵ giraffes and their parts, the equivalent of at least 4 giraffes, including 1 live, 3 trophies, 3 bones, 1 bone carving, 1 hair, 4 large leather products, 3 small leather products, 1 rug, 8 shoes, 6 skins, 1 skull, and 1 trim (Annex A, Table 3).
- 5 captive-born⁶ giraffes and their parts, the equivalent of at least 4 giraffes, including 3 live, 1 trophy, and 1 bone carving (Annex A, Table 4).
- 28 ranched⁷ giraffes and their parts, the equivalent of at least 3 giraffes, including 5 bone carvings, 12 bones, 5 hairs, 1 horn carving, 2 horns, 5 skulls, and 3 trophies (Annex A, Table 5).
- 16 unknown source⁸ giraffes and their parts, the equivalent of >1 giraffe, including 1 bone carving, 12 bone pieces, 1 large leather product, and 1 unspecified product (Annex A, Table 6).

⁵ LEMIS Source code C.

⁶ LEMIS Source code F.

⁷ LEMIS Source code R.

⁸ LEMIS Source code U.

In addition, from 2006 through 2015, the U.S. exported a total of 1,204 giraffe specimens, representing 93 individual giraffes (65 live animals and 28 trophies). Other specimens exported included 51 bone carvings, 1 bone, 33 bone pieces, 6 feet, 1 hair, 700 pieces of jewelry, 4 large leather products, 4 small leather products, 1 plate, 1 rug, 134 shoes, 3 skeletons, 151 skins, 12 skin pieces, and 7 skulls (see Table 3 below).

Table 3. Total U.S. Giraffe Exports, 2006-2015, all sources and all purposes.

Wildlife Description	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	TOTALS
Bone Carvings	0	21	0	0	0	0	0	1	8	21	51
Bones	0	0	0	1	0	0	0	0	0	0	1
Bone Pieces	0	0	0	0	0	0	0	8	7	18	33
Feet	0	0	0	4	0	1	0	0	0	1	6
Hair	0	0	0	0	0	0	1	0	0	0	1
Jewelry	0	0	700	0	0	0	0	0	0	0	700
Leather Products, Large	0	0	0	0	0	0	0	0	1	3	4
Leather Products, Small	0	0	0	0	4	0	0	0	0	0	4
Live	9	9	1	0	9	4	4	4	13	12	65
Plates	0	0	0	1	0	0	0	0	0	0	1
Rugs	0	0	0	1	0	0	0	0	0	0	1
Shoes	0	0	0	0	52	8	40	12	22	0	134
Skeletons	0	0	1	0	2	0	0	0	0	0	3
Skins	2	0	0	0	0	1	1	1	122	23	150
Skin Pieces	0	0	0	0	0	0	0	0	11	1	12
Skulls	0	0	0	3	0	0	0	1	2	1	7
Trophies	1	4	2	2	1	9	2	3	1	3	28
TOTAL	12	34	704	12	68	23	48	30	187	83	1,201

Source: LEMIS data obtained from United States Fish and Wildlife Service through FOIA requests between 2006 and 2015, filtered for exports of Giraffa camelopardalis from all sources and for all purposes.

Of these, 1,131 were wild-sourced, representing at least 26 individual giraffes, including 26 trophies. Other giraffe products exported included bone carvings (4), bones (1), bone pieces (33), feet (6), jewelry (700), large leather products (4), small leather products (4), plates (1), shoes (134), skins (150), skin pieces (12), and skulls (7) (Annex A, Table 7).

From 2006 through 2015, giraffes and their parts from the following additional sources were exported from the U.S.:

- 59 captive-bred giraffes and their parts, the equivalent of at least 55 giraffes, including 55 live animals, 3 skeletons, and 1 hair (Annex A, Table 8).
- 8 captive-born giraffes and their parts, the equivalent of at least 8 giraffes, including 7 live and 1 trophy (Annex A, Table 9).

- 3 ranched giraffes, as live animals (Annex A, Table 10).

a) Trade for Commercial Purposes

Giraffa camelopardalis is not listed on the CITES Appendices and thus international trade is not monitored and traceable like trade in CITES-listed species. However, from the LEMIS data it is evident that most of the trade in giraffes to and from the U.S. is for commercial purposes.

i) U.S. Imports of Giraffes and Their Products for Commercial Purposes

From 2006 to 2015, at least 33,321 giraffe specimens, the equivalent of at least 157 individual giraffes, were imported into the U.S. for commercial purposes (see Table 4 below). Commercial giraffe imports represented 84.3% of the total imports during this period. The vast majority of these specimens were bone carvings (20,885), bones (3,768), skin pieces (2,820), and bone pieces (1,857). Other commercial imports included jewelry (766), skins (715), shoes (526), hair (487), small leather products (314), horn carvings (200), trophies (154), and smaller amounts of other parts and products.

Table 4. Total U.S. Giraffe Imports, 2006-2015, all sources, commercial purposes.

Wildlife Description	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	TOTAL
Bone Carvings	2,908	4,150	1,611	2,707	1,699	189	734	1,340	1,418	4,129	20,885
Bones	142	54	474	171	38	1,359	323	348	223	636	3,768
Bone Pieces	1,678	0	0	5	9	0	35	3	73	54	1,857
Carapaces	0	0	35	0	0	0	0	0	0	0	35
Feet	0	0	12	29	25	5	40	6	0	0	117
Hair	400	2	4	0	0	0	0	81	0	0	487
Hair Products	0	0	0	0	0	0	0	0	0	100	100
Horn Carvings	0	0	0	0	0	3	0	63	47	87	200
Horns	0	0	0	0	0	2	3	0	0	0	5
Jewelry	50	46	670	0	0	0	0	0	0	0	766
Leather Products Large	0	0	0	0	0	0	4	21	37	76	138
Leather Products Small	4	4	0	0	0	0	41	137	44	84	314
Live	0	0	0	0	3	0	0	0	0	0	3
Rug	15	5	11	2	5	0	0	0	0	2	40
Shell Product	0	0	0	0	0	0	0	0	50	0	50
Shoes	0	0	0	0	0	0	0	0	8	518	526
Skeletons	0	0	0	0	0	0	0	0	0	64	64
Skins	7	12	85	13	304	2	8	9	142	133	715
Skin Pieces	39	296	69	91	21	241	58	678	456	871	2,820

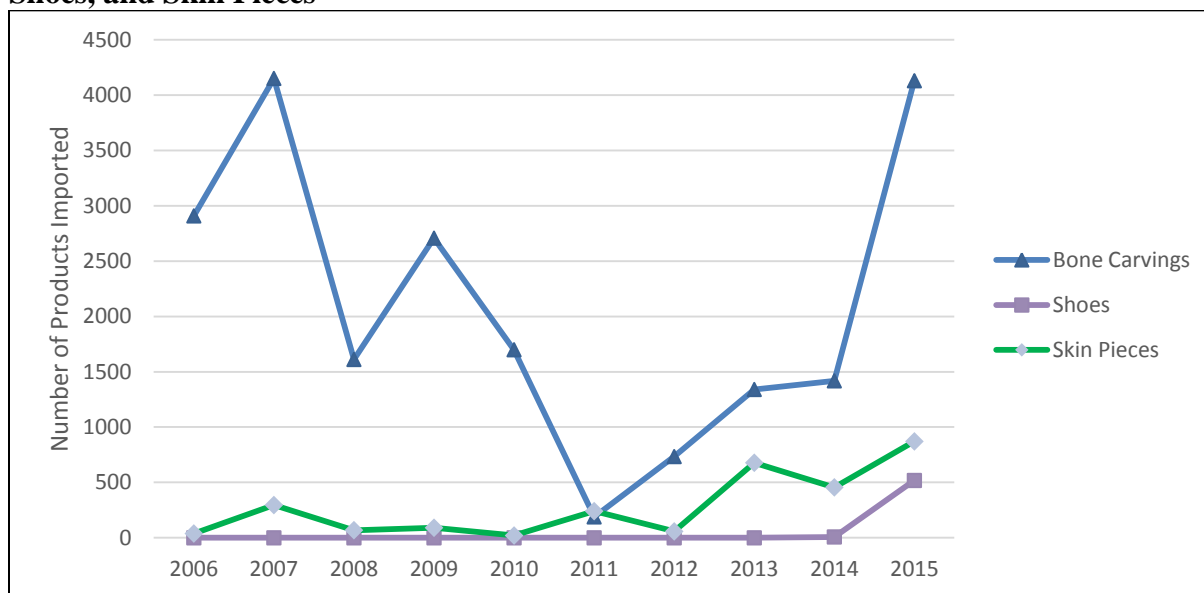
Skulls	10	0	12	11	29	26	0	3	1	17	109
Specimens	0	0	0	0	0	0	50	0	0	0	50
Tails	0	0	0	6	0	0	0	0	0	0	6
Teeth	0	0	0	0	1	0	0	0	0	0	1
Trim	0	0	0	0	0	0	0	1	0	0	1
Trophies	125	0	0	2	1	3	17	2	3	1	154
Unspecified	10	0	0	0	0	0	0	0	0	0	10
TOTAL	5,388	4,569	2,983	3,037	2,135	1,830	1,313	2,692	2,502	6,772	33,221

Source: LEMIS data obtained from United States Fish and Wildlife Service through FOIA requests between 2006 and 2015, filtered for imports of *Giraffa camelopardalis* for commercial purposes from all sources.

Upon inspection of the Service's records, some giraffe products were seized by the U.S. and reported as such in the LEMIS database (Annex A, Table 11). For example, from 2006-2015, a total of 70 giraffe products imported into the U.S. for commercial purposes were seized by U.S. authorities. These include bone carvings (9), bones (4), jewelry (50), small leather products (2), and trophies (5).

According to LEMIS data, significant commercial trade in giraffes and their parts occurred between 2006 and 2008, after which trade decreased until 2010. Since 2011, however, there has been a dramatic increase in U.S. imports of giraffes and their products for commercial purposes (see Figure 1 below). The amount of bone carvings, shoes, and skin pieces imported for commercial purposes has increased markedly over the last five years (see Figure 1 below), with concurrent increases in other products such as skins, shoes, leather products, and horn (ossicone) carvings for commercial purposes (see Table 4 above).

Figure 1. U.S. Imports of Giraffes for Commercial Purposes, 2006-2015, Bone Carvings, Shoes, and Skin Pieces



Source: LEMIS data obtained from United States Fish and Wildlife Service through FOIA requests between 2006 and 2015, filtered for imports of *Giraffa camelopardalis* for commercial purposes from all sources.

ii) U.S. Exports of Giraffes and Their Products for Commercial Purposes

For commercial purposes, the U.S. exported 1,117 giraffes and their products between 2006 and 2015 for commercial purposes, representing at least 52 individual giraffes, including 41 live animals and 11 trophies. The commercial exports represent 98.8% of the total exports of giraffes and their products during this period. Additional commercial exports of giraffe products included bone carvings (30), bone pieces (25), jewelry (700), large leather products (4), small leather products (4), shoes (134), skeletons (3), skins (150), skin pieces (11) and skulls (4) (see Table 5 below).

Table 5. Total U.S. Giraffe Exports, 2006-2015, all sources, commercial purposes.

Wildlife Description	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	TOTAL
Bone Carvings	0	21	0	0	0	0	0	1	7	8	37
Bones	0	0	0	0	0	0	0	0	0	0	0
Bone Pieces	0	0	0	0	0	0	0	0	0	18	18
Jewelry	0	0	700	0	0	0	0	0	0	0	700
Leather Products Large	0	0	0	0	0	0	0	0	1	3	4
Leather Products Small	0	0	0	0	4	0	0	0	0	0	4
Live	5	8	1	0	9	4	2	0	8	4	41
Shoes	0	0	0	0	52	8	40	12	22	0	134
Skeletons	0	0	1	0	2	0	0	0	0	0	3
Skins	2	0	0	0	0	1	1	1	122	23	150
Skin Pieces	0	0	0	0	0	0	0	0	11	0	11
Skulls	0	0	0	1	0	0	0	1	2	0	4
Trophies	0	1	1	1	1	6	0	0	1	0	11
TOTAL	7	30	703	2	68	19	43	15	174	56	1,117

Source: LEMIS data obtained from United States Fish and Wildlife Service through FOIA requests between 2006 and 2015, filtered for exports of Giraffa camelopardalis for commercial purposes from all sources.

Local and international trade in giraffe and giraffe products in certain countries such as Namibia pose a risk to giraffes as increased numbers of carved giraffe bones have recently been observed at local tourist markets (du Raan et al., 2016, p. 2). The data presented above show that not only does the U.S. import a significant amount of giraffes and their products for commercial purposes—representing potential or known overutilization in range States—but also that there is an ongoing increasing trend in commercial imports of giraffes and their products that, in light of population trends (Muller et al., 2016, p. 4-5), threatens to further exacerbate decline in an already vulnerable species.

b) Trade for Recreational Purposes

A significant number of giraffes in trade are traded for hunting trophy purposes and giraffes are clearly over-utilized for this purpose.

i) U.S. Imports of Giraffes and Their Products for Recreational Purposes

From 2006 to 2015, 5,044 giraffe specimens, representing at least 3,563 individual giraffes, were imported into the U.S. for hunting trophy purposes; including 3,561 trophies, 1 body, and 1 live animal. The most common type of specimen imported for hunting trophy purposes were “trophies” (3,561), followed by “bones” (813) and “bone carvings” (174) (Annex A, Table 12). The top exporters of giraffe specimens for hunting trophy purposes were South Africa (3,065 or 60.8%), Zimbabwe (1,346 or 26.7%), and Namibia (575 or 11.4%) (Annex A, Table 13). Together these three countries account for 98.9% of giraffe specimens imported to the U.S. for hunting trophy purposes.

Since 2010 there has been a marked increase in the number of giraffe trophies imported to the U.S., peaking in 2015, when 457 trophies were imported (see Figure 2 below). Since 2006, the U.S. has imported over 300 giraffe trophies per year, with the single exception of 2010 (when trophy imports totaled 276), indicating that the U.S. continues to be a major importer of giraffe hunting trophies in this decade.

Figure 2: U.S. Imports of Giraffe Trophies for Hunting Trophy Purposes, 2006-2015



Source: LEMIS data obtained from United States Fish and Wildlife Service through FOIA requests between 2006 and 2015.

ii) U.S. Exports of Giraffes and Their Products for Recreational Purposes

From 2006 to 2015, 26 giraffe specimens, representing at least 11 individual giraffes, were exported for hunting trophy purposes. The most common type of specimen exported for hunting trophy purposes were “trophies” (11), followed by “feet” (5), and “bone carvings” (4) (Annex A, Table 14).

c) Trade for Scientific Purposes

From 2006 through 2015, 53 giraffe parts and products were imported into the U.S. for scientific purposes (Annex A, Table 15), including hair (6), specimens (45) and teeth (2), all of which were wild-sourced.

d) Trade for Other Purposes

From 2006 through 2015, giraffes and their parts and products were imported into the U.S. for other purposes, including:

- 1 bone for “educational”⁹ purposes.
- 1,195 giraffe parts and products for “personal”¹⁰ purposes including 29 giraffe trophies. South Africa is, by far, the country with the most number of giraffe trophies exported to the U.S. for personal purposes, with 15 exported to the US, comprising 51.7% of all such imports (Annex A, Table 16).
- 1 body, 1 foot, 1 hair, and 6 specimens for “circus or traveling exhibition”¹¹ purposes (Annex A, Table 17).
- 1 live giraffe for “zoo”¹² purposes.

From 2006 through 2015, giraffes and their parts and products were exported from the U.S. for other purposes, including:

- 2 giraffe trophies for “educational” purposes.
- 30 giraffe parts and products for “personal” purposes, including 17 bone carvings, 8 bone pieces, 1 skin piece, and 4 trophies. All of these exports were wild-sourced (Annex A, Table 18).
- 1 foot and 1 product containing giraffe hair for “circus or traveling exhibition” purposes.
- 24 live giraffes for “zoo” purposes (Annex A, Table 19).

e) International Trade to the U.S. from Giraffe Range States

This section provides details about the export of giraffes and their parts and products to the U.S. by giraffe range States from 2006 through 2015. The following range States did not export giraffes or their parts or products during this period: Angola, Cameroon, Central African Republic, Chad, The Democratic Republic of Congo, Mozambique, Niger, Somalia, South

⁹ LEMIS purpose code E.

¹⁰ LEMIS purpose code P.

¹¹ LEMIS purpose code Q.

¹² LEMIS purpose code Z.

Sudan, and Uganda. Between 2006 and 2016, eight giraffe range States exported giraffes and their parts and products to the U.S.; the seven countries that exported giraffe bodies, live animals, or trophies (which are each equal to one giraffe) are listed in Table 6 below.

Table 6. Range States Exporting Giraffe and their Products to the U.S., 2005-2016.

Country of Export	Individual Giraffes Exported (bodies, live, trophies)	% of U.S. Imports of Giraffes and their products (rounded to nearest whole percent)
South Africa	2,212	59%
Zimbabwe	971	26%
Namibia	522	14%
Botswana	21	1%
Zambia	7	<1%
Tanzania	1	<1%
Ethiopia	1	<1%
TOTAL	3,735	100%

The following section details exports to the U.S. from giraffe range States, based on U.S. import records.

i) Botswana

Botswana exported a total of 24 giraffe products, equivalent to at least 21 individuals, between 2006 and 2015, including 21 trophies (Annex A, Table 20). This amount comprises approximately 1% of the total U.S. imports of giraffes and their products equivalent to individual animals during that period (22 of 3,735). In addition, 1 skin and 2 pieces of jewelry were exported to the U.S. during this period. All of these were wild-sourced and imported into the U.S. for hunting trophy purposes.

ii) Ethiopia

Ethiopia exported 1 giraffe trophy between 2006 and 2015 (Annex A, Table 21). This amount comprises less than 1% of the total U.S. imports of giraffes and their products equivalent to individual animals during that period (1 of 3,735). This trophy was wild-sourced and imported into the U.S. for hunting trophy purposes.

iii) Kenya

Kenya exported giraffe products equivalent to less than one individual between 2006 and 2015, including 3 pieces of jewelry and 125 bone carvings (Annex A, Table 22). This amount comprises 0% of the total U.S. imports of giraffe and their products equivalent to individual animals during that period (0 of 3,735). The estimate is zero because one cannot estimate the number of individual giraffes represented from jewelry and bone carvings. All of these were wild-sourced and the pieces of jewelry were imported into the U.S. for personal purposes, while the bone carvings were imported for commercial purposes.

iv) Namibia

Namibia exported a total of 685 giraffe products, equivalent to at least 522 individuals, between 2006 and 2015, including 522 trophies (Annex A, Table 23). This amount comprises approximately 14% of the total U.S. imports of giraffes and their products equivalent to individual animals during that period (522 of 3,735). For hunting trophy purposes, 9 bone carvings, 9 bones, 14 feet, 3 genitalia, 1 leg, 12 skins, 2 skin pieces, 2 skulls, 3 tails, 1 unspecified product, and one wood product were imported into the U.S. from Namibia between 2006 and 2015. All of these were wild-sourced.

For personal purposes, 17 bone carvings, 7 bones, 4 bone pieces, 6 feet, 5 hair products, 1 small leather product, 3 skins, 2 skin pieces, and 1 skull were imported. All of these were wild-sourced. For scientific purposes, 19 specimens were imported into the U.S. from Namibia between 2006 and 2015. All of these were wild-sourced. For commercial purposes, 40 bones were imported into the U.S. from Namibia between 2006 and 2015. All of these were wild-sourced.

v) Nigeria

Nigeria exported 1 giraffe product equivalent to one individual between 2006 and 2015, consisting of 1 wild-sourced giraffe skin for personal purposes (Annex A, Table 24). This amount comprises nearly 0% of the total U.S. imports of giraffes and their products equivalent to individual animals during that period (1 of 3,735).

vi) South Africa

South Africa exported 31,245 giraffe products, equivalent to at least 2,212 individuals, between 2006 and 2015, including 2,210 trophies and 2 bodies. This amount comprises approximately 59% of the total U.S. imports of giraffes and their products equivalent to 2,212 individual animals during that period (2,212 of 3,735). South Africa exported a total of 31,245 giraffe parts to the U.S. during this period (Annex A, Table 25).

For educational purposes, 1 wild-sourced bone was exported from South Africa to the U.S. between 2006 and 2015.

For hunting trophy purposes, 3 captive-bred giraffe trophies were exported from South Africa to the U.S. between 2006 and 2015. From wild-sourced giraffes, 137 bone carvings, 1 body, 613 bones, 3 bone pieces, 1 carapace, 1 ear, 71 feet, 2 genitalia, 6 hair products, 65 large leather products, 1 small leather product, 2 plates, 3 rugs, 68 skins, 15 skin pieces, 12 skulls, 3 tails, 2 trims, 2,049 trophies, and 1 unspecified product were exported from South Africa for hunting trophy purposes to the U.S. between 2006 and 2015. In addition, 2 trophies from ranched giraffes were exported from South Africa for hunting trophy purposes to the U.S. between 2006 and 2015.

For personal purposes and from wild-sourced giraffes, 62 bone carvings, 1 body, 84 bones, 2 bone pieces, 3 carapaces, 2 eggshells, 79 feet, 1 genitalia, 1 hair, 2 hair products, 22 pieces of jewelry, 45 large leather products, 22 small leather products, 3 plates, 4 rugs, 7 skins, 41 skin

pieces, 2 skulls, 8 tails, 1 trim, 15 trophies, 2 unspecified products, and 3 wood products were exported from South Africa to the U.S. between 2006 and 2015. From captive-bred giraffes, 2 large leather products were imported from South Africa to the U.S. for personal purposes between 2006 and 2015.

For scientific purposes, 1 wild-sourced specimen was exported from South Africa to the U.S. between 2006 and 2015.

For commercial purposes and from captive-bred giraffes, 31 bone carvings, 3 bones, 2 large leather products, 3 small leather products, 4 skins and 1 trim were exported from South Africa to the U.S. between 2006 and 2015. From ranched giraffes, 1 horn carving, 1 horn and 12 bones were exported from South Africa to the U.S. between 2006 and 2015. From wild-sourced giraffes, 20,070 bone carvings, 3,677 bones, 1,844 bone pieces, 35 carapaces, 117 feet, 56 hairs, 100 hair products, 199 horn carvings, 3 horns, 46 pieces of jewelry, 49 large leather products, 146 small leather products, 40 rugs, 64 skeletons, 87 skins, 640 skin pieces, 105 skulls, 50 specimens, 50 shell products, 6 tails, 1 tooth, 141 trophies, and 10 unspecified products were exported from South Africa to the U.S. between 2006 and 2015. From unknown sources, 12 bone pieces were exported from South Africa for commercial purposes to the U.S. between 2006 and 2015.

vii) Tanzania

Tanzania exported 692 giraffe products, equivalent to at least one individual, between 2006 and 2015, including 1 wild-sourced trophy for hunting trophy purposes (Annex A, Table 26). This amount comprises <1% of the total U.S. imports of giraffes and their products equivalent to individual animals during that period (1 of 3,735).

For personal purposes, 1 hair product and 690 pieces of jewelry were exported from Tanzania to the U.S. between 2006 and 2015.

viii) Zambia

Zambia exported 41 giraffe products equivalent to at least seven individuals between 2006 and 2015, including 7 wild-sourced trophies exported for hunting trophy purposes (Annex A, Table 27). This amount comprises less than 1% of the total U.S. imports of giraffes and their products equivalent to individual animals during that period (7 of 3,735).

For personal purposes, 1 wild-sourced bone carving was exported from Zambia to the U.S. between 2006 and 2015. For scientific purposes, 6 hairs, 2 teeth, and 25 specimens from wild-sourced giraffes were exported from Zambia to the U.S. between 2006 and 2015.

ix) Zimbabwe

Zimbabwe exported 5,429 giraffes and their products, equivalent to at least 971 individuals, between 2006 and 2015, including 971 wild-sourced trophies (Annex A, Table 28). This amount comprises 26% of the total U.S. imports of giraffes and their products equivalent to individual animals during that period (971 of 3,735).

For hunting trophy purposes from wild-sourced giraffes, 28 bone carvings, 185 bones, 3 bone pieces, 9 bones, 14 feet, 2 genitalia, 7 pieces of jewelry, 12 large leather products, 16 small leather product, 3 rugs, 32 skins, 66 skin pieces, 14 skulls, 3 tails, 5 trims, and 952 trophies were exported from Zimbabwe to the U.S. between 2006 and 2015. In addition, 2 trophies from ranched giraffes were exported from South Africa for hunting trophy purposes to the U.S. between 2006 and 2015.

For personal purposes from wild-sourced giraffes, 97 bone carvings, 116 bones, 17 bone pieces, 37 feet, 5 pieces of jewelry, 61 large leather products, 12 small leather products, 3 plates, 11 rugs, 10 skins, 61 skin pieces, 6 skulls, 39 tails, 12 trims, 9 trophies, and 4 wood products were exported from Zimbabwe to the U.S. between 2006 and 2015.

Therefore, as demonstrated in this section, the African giraffe is endangered by overutilization for commercial and recreational purposes, and the U.S. plays a major role in this unsustainable international trade.

2) Online Sales of Giraffe Products

a) Methodology

Between November 30, 2016 and December 21, 2016, one researcher based in Washington, D.C., conducted an assessment of online sales of products made from giraffe parts (Annex B, Table 29). The online search was conducted in English and Russian¹³ and was intended to capture a sample of products available for purchase. Due to restrictions in ability to search for products in additional languages and limited capacity, it is reasonable to assume the actual online trade in giraffe parts is far greater in volume and worth much more financially than what the research reveals.

The product search was conducted using the Google search engine and the following English and Russian language search terms: giraffe hide (жираф шкура), giraffe skin (жираф кожа), giraffe knife (жираф нож), giraffe gun (жираф ружье), giraffe bone (жираф кость), authentic giraffe hide (натуральная шкура жирафа), giraffe skin purse (жираф сумка кожа), giraffe carpet (жираф ковер), giraffe skin genuine carpet (жираф шкура настоящий ковер), giraffe skin boots (жираф кожа сапоги), giraffe hair (жираф волосы). Furthermore, tailored searches for these same terms were also conducted separately on Amazon.com, Ebay.com, and Etsy.com. From each relevant search result, the researcher recorded the following information: item description, quantity offered, cost per item, website address, manufacturer title, seller title, seller address, country, and search date.

b) Findings

A total of 1,224 items made from giraffe parts were discovered for sale online during the research period. However, it must be noted that many websites did not indicate the quantity of

¹³ Russian was selected as the additional language because the individual conducting the research for this section speaks fluent Russian and therefore had the ability to analyze the findings.

items in stock, which means that the total number of items covered by the search is likely much higher. The following are the types of items found available for sale: skeleton parts (skulls, neck vertebrae, upper leg bones, lower leg bones, and shoulder blades); bone products (carvings, blocks, cylinders, earrings, rounds, scales, thumb studs, pen blanks, pistol grips); knives (bone handles); cutlery set (bone handles); hair products (bracelets, necklaces); taxidermy (bust, leg mount); skin products (hides, handbags, rugs, handgun cases, pillows, boots); and products such as tables and lamps made of other body parts.

The most common type of objects offered for sale were scales (a piece of raw bone in the shape of a rectangle that is carved into knife handles) or giraffe bones that may be used to make knife handles, with 346 such items found. The second most common were *raw bones* (neck, skull, legs, etc.), with 159 such items found. The third most common objects offered for sale were *knives* featuring giraffe bone handles, with 132 found.

The cost of these items ranged between \$5 (one giraffe bone) and \$7,635 (full giraffe taxidermy bust—including shoulders, neck, and head) per item. The total cost of items found is not known because total stock quantities were unavailable and, therefore, the items found represent only a small sample of all giraffe products available for sale online.

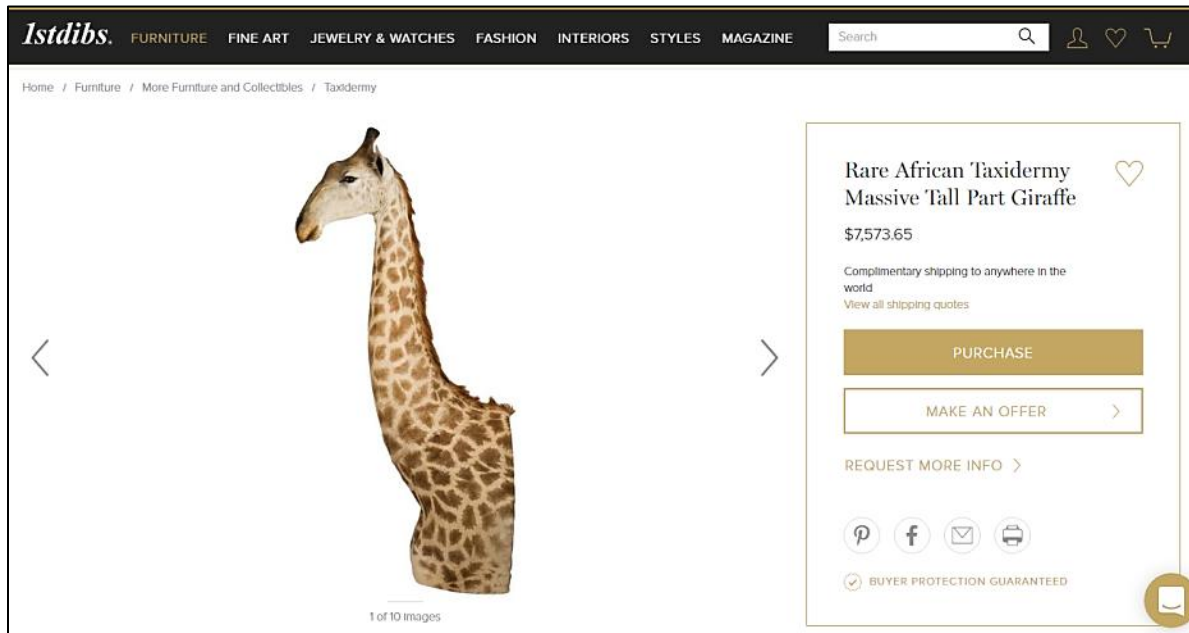
Products found were available for shipping from the U.S., South Africa, Namibia, Russia, Ukraine, India, and France. However, the scope of all countries that may offer giraffe products for sale may be limited by the language restrictions of the researcher conducting the online search and the fact the searches were limited to common search engines or point of sale websites (e.g., eBay).

The largest country from which and in which giraffe products may be purchased online, according to our research, is the U.S.. The states in which giraffe product sellers operated included Florida, Georgia, Nevada, New York, North Carolina, Oklahoma, Pennsylvania, Tennessee, Texas, and Washington.

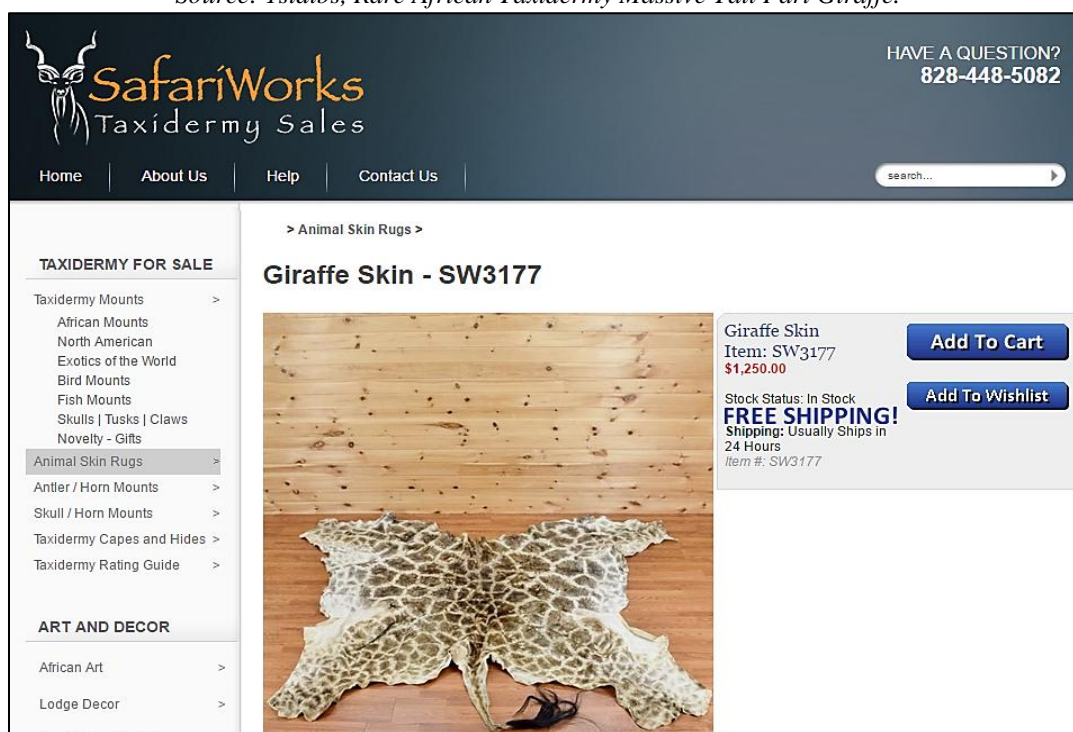
Some of the online retailers include:

- | | | |
|-------------------------|----------------------|----------------------|
| ● Amazon | ● Texas Knifemaker's | ● African Game |
| ● eBay | ● Supply | ● Industries |
| ● Etsy | ● Blade Gallery | ● Caspers Taxidermy |
| ● SafariWorks | ● Ever After Guide | ● Kelly Larson Sales |
| ● Taxidermy Sale | ● Knives Ship Free | ● Culpepper & Co. |
| ● 1stdibs.com | ● Coast Ivory | ● Knife Kits |
| ● Cavender's | ● Knife Handles | ● Asian Loft |
| ● Genuine Exotic Skins | ● Camel Bone Knife | ● Loft Concept |
| ● and Hides | ● Handles | ● ArtWood of Africa |
| ● African Crafts Market | ● Atlantic Coral | ● Regmarkets |
| ● Knife Making | ● Enterprise, Inc. | ● Shkury Kovry |
| ● Mercorne | ● Sabatier Shop | ● Rezat.ru |
| ● Mackrill Knives | ● Natural Exotics | |

The following are screenshots of some of the items found:



Source: Istdibs, Rare African Taxidermy Massive Tall Part Giraffe.¹⁴




Source: SafariWorks, Taxidermy Sales, Giraffe Skin.¹⁵


¹⁴ Istdibs, Rare African Taxidermy Massive Tall Part Giraffe, available at https://www.1stdibs.com/furniture/more-furniture-collectibles/taxidermy/rare-african-taxidermy-massive-tall-part-giraffe/id-f_3881812/?utm_content=control&gclid=CjwKEAiAjvrBBRDxm_nRusW3q1QSJAAzRI1thSN_wmzwbUeuMnPTIDU63ut2kH24hSOgtJLTxGmwYxoCqrnw_wcB (last visited Jan. 6, 2017).

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Source: Amazon.com, Custom Made Damascus Steel Hunting Knife w/ Giraffe & Camel Bone Handle.¹⁷

¹⁵ SafariWorks, Taxidermy Sales, Giraffe Skin, available at http://www.safariworkstaxidermysales.com/Giraffe_Skin_p/sw3177.htm (last visited Jan. 6, 2017).

¹⁶ Loft Concept, Natural Giraffe Skin, available at <http://loft-concept.ru/catalog/hide-and-rug/naturalnaya-shkura-zhirafa/> (last visited Jan. 6, 2017).

¹⁷ Amazon.com, Top Swords, Custom Made Damascus Steel Hunting Knife w/ Giraffe & Camel Bone Handle, available at https://www.amazon.com/Custom-Damascus-Hunting-Giraffe-Handle/dp/B010TR4Z2M?SubscriptionId=AKIAJO7E5OLQ67NVPFZA&ascsubtag=817452680-26-123607149.1481923733&camp=2025&creative=165953&creativeASIN=B010TR4Z2M&linkCode=xm2&tag=shopperz_origin2-20 (last visited Jan. 6, 2017).

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- Наборы ножей для стейка (22)

Главная → Справочники → Материал рукояти → Кость жирафа

Кость жирафа

Жираф (лат. *Giraffa camelopardalis*) — млекопитающее из отряда парнокопытных, семейства жирафовых. Является самым высоким наземным животным планеты. Для отличия от родственного ему окапи («кленого жирафа») иногда называется степным жирафом.

Самцы жирафа достигают высоты до 5,5 м и весят до 900 кг. Самки, как правило, немного меньше и легче. Шея у жирафов необычайно длинная, и это несмотря на то, что у них, как и у почти всех других млекопитающих, лишь семь шейных позвонков.

Жирафы обитают в саваннах Африки. Сегодня их можно встретить только к югу и юго-востоку от Сахары, прежде всего в степях Восточной и Южной Африки. Популяции севернее Сахары были искоренены человеком ещё в древности: во времена Древнего Египта они существовали в дельте Нила и на берегах Средиземного моря. В XX веке ареал жирафов вновь значительно сократился. Наиболее крупные популяции жирафов сегодня обитают в заповедниках и резерватах.

На североафриканские популяции уже в древности охотились греки и римляне. Иногда жирафов даже использовали для показов в Колизее. В целом жираф был малоизвестен в Европе. Хотя в северном полушарии и существует созвездие Жираф, оно является сравнительно новой условностью и не имеет мифологического происхождения. В чёрной Африке на жирафов охотились с помощью рытья ям и ловушек. Их длинные сухожилия использовались для тетивы луков и струн музыкальных инструментов, одежда из шкуры жирафа у многих народов служила символом высокого статуса. Мясо у жирафов жёсткое, но съедобное. Охота африканских племён на жирафов никогда не достигала масштабов, способных всерьёз поставить под угрозу их численность. С прибытием белых поселенцев главным мотивом охоты на жирафов стало развлечение, а численность жирафов стала резко сокращаться. Сегодня жирафы почти везде — редкие животные.

Кость жирафа часто идет на рукояти ножей благодаря крепости костяка животного.



Source: Rezat.ru, Arno Bernard Knives.¹⁸

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Source: Ebay.com, Worldwide Wildlife Products, 25 inch South African Giraffe Shoulder Blade bone taxidermy.¹⁹

¹⁸ Rezat.ru, Arno Bernard Knives, available at http://rezat.ru/ref/rukmaterial/kost_zhirafa/ (last visited Jan. 6, 2017).

¹⁹ Ebay.com, Worldwide Wildlife Products, 25 inch South African Giraffe Shoulder Blade bone taxidermy, available at http://www.ebay.com/itm/25-inch-South-African-Giraffe-Shoulder-Blade-bone-taxidermy-T-4807/371435596919?_trksid=p2047675.c100623.m-1&_trkparms=aid%3D222007%26algo%3DSIC.MBE%26ao%3D1%26asc%3D38530%26meid%3D5163f1d2bbf94d3c89486fcbca63ddd6%26pid%3D100623%26rk%3D2%26rkt%3D6%26sd%3D201493342851 (last visited Jan. 6, 2017).

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2 piece Scales. Great for full tang projects!


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NB1201C Super Natural - Giraffe Bone
Price: \$46.50
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Dark blue resin impregnated with brown dyed giraffe bone marrow.
4.5" L x 1.8" W x .49" thickness.

Finish your scales up to a 1000 grit. Apply a very thin layer of super thin glue (CA) -- we recommend Zap A Gap #PT01. You can spray mild CA accelerator like our #PT15 on the scale. Sand again from 400 grit up to 1000 grit. Inspect for lumps of CA and sand until smooth. Repeat above process with a new coat of CA. You can repeat this process up to 4 times but do not use too much CA to avoid cracking. San until you are happy with the finish. Final finish with Micron sandina paper 4000 grit - our



Source: Jantz Supply, Super Natural - Giraffe Bone.²⁰

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SIZE
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18" (+\$30.00)
QTY (50 available) 1
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Source: African Game Industries, Giraffe Hide Skin Pillow.²¹

²⁰ Jantz Supply, Super Natural - Giraffe Bone, available at <http://www.knifemaking.com/category-s/1165.htm> (last visited Jan. 6, 2017).

²¹ African Game Industries, Giraffe Hide Skin Pillow, available at <http://africangame.com/store/#!/Giraffe-Hide-Skin-Pillow/p/73750296> (last visited Jan. 6, 2017).

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Giraffe & Buffalo Hide Handgun Case

CATEGORY: [Store](#) > [HANDGUN ACCESSORIES](#) > [Handgun Cases](#)



TYPE: Genuine Giraffe Hide Handgun Case

DESCRIPTION: This attractive handgun case is manufactured in the USA from striking genuine Giraffe hide and brown Cape Buffalo hide front and back.

SKU 00056

IN STOCK

\$55.00

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QTY (45 available)

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Source: African Game Industries, Giraffe & Buffalo Hide Handgun Case.²²

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Giraffe Bones Hand Picked Pricing

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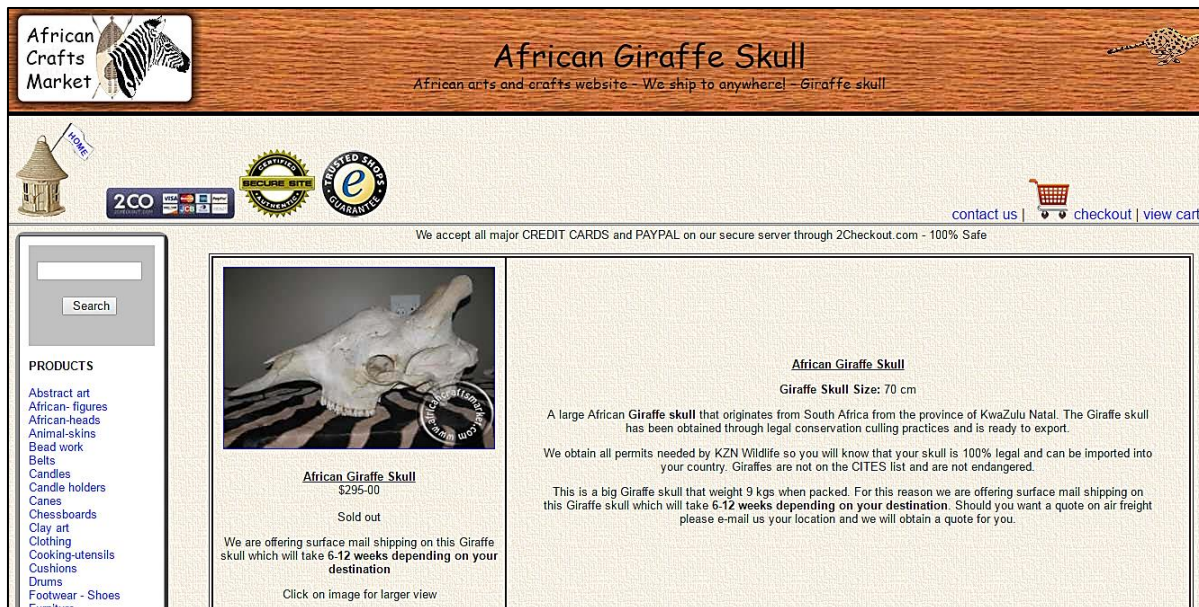


We have hand selected and photographed these giraffe bones, shoulder blades, giraffe pieces, giraffe neck bones and giraffe vertebrae. These giraffe bones are used in carving knife handles, cane handles, gun grips and in taxidermy crafts. These animals either died of natural causes or were harvested in accordance with Governmental culling programs

Source: Atlantic Coral Enterprise, Inc., Giraffe Bones Hand Picked Pricing.²³

²² African Game Industries, Giraffe & Buffalo Hide Handgun Case, available at <http://africangame.com/store/#!/Giraffe-&-Buffalo-Hide-Handgun-Case/p/73750303> (last visited Jan. 6, 2017).

²³ Atlantic Coral Enterprise, Inc., Giraffe Bones Hand Picked Pricing, available at <http://www.atlanticcoralenterprise.com/ProductCart/pc/viewCategories.asp?idCategory=697> (last visited Jan. 6, 2017).



Source: African Crafts Market, African Giraffe Skull.²⁴

3) Survey-Based Giraffe Parts Trade Data

In 2016 a group of researchers used a questionnaire to survey giraffe experts in order to determine the types of giraffe products encountered in trade and any potential trends of trade (Khalil et al., 2016). There were 90 respondents from 18 countries in Africa and one in Europe, with most respondents located in Kenya, South Africa, Namibia, Tanzania, and Zimbabwe.

According to the results, most survey responses referred to clothing and souvenir items made from giraffe parts. These items included jewelry, bracelets, skins, mounts, carved bone, tails, and purses (Khalil et al., 2016, p. 3). Another major product category referenced by the respondents was food, including sausages, dried meat, and bushmeat (ibid.). The final category included items used for medicinal purposes such as aphrodisiacs, headache cures, and “magic potions” (Khalil et al., 2016, p. 4).

With respect to trends, most survey respondents said that trade was stable. Those who believed that the number of items available for trade decreased cited declining giraffe populations as one explanation. Those who believed that trade in giraffe parts was increasing cited “increased activity in TRAFFIC newsletters, more personal sightings, and a general increase in trade on wildlife products . . .” (Khalil et al. 2016, p. 4).

This survey-based research has been submitted for publication and is expected to be published in 2017.

²⁴ African Crafts Market, African Giraffe Skull, available at <http://www.africancraftsmarket.com/Giraffe-skull.htm> (last visited Jan. 6, 2017).

4) The Widespread Bushmeat Trade in Giraffes

The hunting of wildlife for food or bushmeat increasingly threatens a multitude of wildlife in Africa. Commonly thought to be a problem primarily in forested ecosystems, the bushmeat trade is now well-documented in savannah ecosystems as well (Lindsey et al., 2013, p. 13; Strauss et al., 2015, p. 506). The net result of this often-illegal practice is a significant loss of biological diversity (Topp-Jorgensen et al., 2009, p. 71; Lindsey et al., 2013, p. 13). In particular in central and western Africa, wildlife population declines and loss have been attributed to hunting for bushmeat (Topp-Jorgensen et al., 2009, p. 71; Petrozzi et al., 2016, p. 546). Similar declines and extirpations are now being documented in eastern Africa (Topp-Jorgensen et al., 2009, p. 71; Lindsey et al., 2013, p. 10).

Poaching for bushmeat is identified as one of the factors contributing to the recent decline of giraffe populations (Okello et al., 2015, p. 160). As part of the bushmeat trade, giraffes are snared or otherwise illegally hunted for their meat, bones, hides, and other parts. Giraffes are most frequently caught in head/neck snares (Strauss et al., 2015, p. 512), but occasionally leg snares are also used. While giraffes can break free from snares, many die once snared (Strauss et al., 2015, p. 512). Adult giraffes are most frequently targeted and males are most frequently snared (Strauss et al., 2015, p. 512; Suraud et al., 2012, p. 581). The level of illegal giraffe poaching is difficult to detect because carcasses may not remain in the bush due to the high demand for giraffe bones and hides (Strauss et al., 2015, p. 515). Giraffe meat is consumed locally but is also part of cross border trade in bushmeat (Okello et al., 2015, p. 170) and much larger markets may exist for giraffe parts than are currently documented (Strauss et al., 2015, p. 515).

a) Western Africa

The West African giraffe (*Giraffa camelopardalis peralta*) is the only giraffe subspecies in western Africa and this subspecies nearly went extinct in Niger after “a period of high illegal hunting” (Suraud et al., 2012, p. 581). Today, the giraffe population has increased even in unprotected areas “where large carnivores have been eliminated, illegal hunting is virtually absent, and people and giraffe coexist” (Bercovitch et al., 2015, p. 141). While Niger’s giraffe population rebounded after 1996 “when poaching was controlled” (Suraud et al., 2012, p. 581), researchers observed a “female-biased sex ratio in adult and subadult giraffes” attributed to more male giraffes being poached than female giraffes (ibid., p. 580). Thus, illegal hunting of giraffes has long-reaching ramifications for poached populations even after hunting is halted or curtailed. While giraffe populations in Niger did recover, the poaching of giraffes in bordering Mali and Nigeria remains a threat to animals attempting range expansion (Suraud et al., 2012, p. 582).

b) Central and Eastern Africa

Illegal hunting remains a threat to Kordofan giraffes (*G. c. antiquorum*), Nubian giraffes (*G. c. camelopardalis*), reticulated giraffes (*G. c. reticulata*), Rothschild’s giraffes (*G. c. rothschildi*), Masai giraffes (*G. c. tippelskirchi*), and Thornicroft’s giraffes (*G. c. thornicrofti*). The giraffe’s habitat in northern Central African Republic was under pressure from decades of “continuous uncontrolled hunting” (Bouche et al., 2012, p. 7001; Marais et al., 2012, p. 2 (CAR)). Bushmeat

trade in giraffe meat has contributed to the elimination of Kordofan giraffes in Cameroon, South Sudan, DRC, and Chad (Marais et al. 2013, p. 1 (Cameroon); Marais et al., 2013, p. 2 (DRC); Marais et al., 2013, p. 2 (South Sudan); Marais et al., 2014, p. 1 (Chad)). Wildlife populations, including giraffes, in the area collapsed due to increased poaching in the “early 1980s” and the spread of rinderpest, a disease spread from cattle (Bouche et al., 2012, p. 7004). However, the bushmeat trade remains a threat to giraffes (Marais et al., 2012, p. 1-2 (CAR)). As Bouche et al. (2012, p. 7007) explained, bushmeat hunting is the second largest threat to wildlife in CAR and is traded into Sudan and Chad.

Reticulated and Rothschild’s giraffes in Kenya are threatened by the bushmeat trade where hunting of wildlife is becoming a primary threat (Lindsey et al., 2013, p. 10). Kinnarid et al. (2012, p. 12) observed “human removal of meat from giraffe” in Laikipia County, Kenya and generally classified bushmeat as a threat to reticulated giraffes. Rothschild’s giraffes in Murchison Falls National Park in Uganda face increases in poaching and the bushmeat trade (Uganda Wildlife Authority website; Uganda Conservation Foundation website).

Okello et al. (2015, p. 161) determined that “[t]hroughout Kenya and Tanzania, the Maasai giraffe population is faced by numerous threats mainly bushmeat poaching and poaching for products like their tail hair and hide for use in bracelets and trinkets.” Similarly, Okello et al. (2015, p. 161) document a 70% decline over 20 years in the Masai giraffe in the Maasai-Mara in Kenya due to factors including poaching.²⁵

Lindsey et al. (2013, p. 10) document bushmeat hunting as the “primary threat to wildlife” in Kenya and Zambia including Thornicroft’s giraffe and noted that in Zambia, “excessive bushmeat hunting” contributed to wildlife population depletions “in 70% of game management areas” (ibid., p. 13). Lindsey et al. (2011, p. 97) explain how the bushmeat trade depleted wildlife populations in protected areas in Zambia and Malawi and Marais et al. (2013, p. 2 (Malawi)) document illegal hunting in Malawi. These findings are echoed in the assessment of Thornicroft’s giraffe by Giraffe Conservation Foundation (du Raan et al., 2015, p. 2 (Zambia)).

²⁵ There are also many place-specific accounts of increased bushmeat poaching and trade of Masai giraffe. Ogotu et al. (2011, p. 4) noted “[e]scalated illegal hunting along the western border of the northern Serengeti Park and adjoining Mara Triangle was associated with dramatic reductions in numbers of topi, waterbuck, buffalo and giraffe” and that these “drastic wildlife declines typify a more widespread pattern in Kenya and in the rest of Africa.” Lindsey et al. (2011, p. 96) document that in the “Serengeti snaring has driven population declines of several resident species.” Strauss et al. (2015, p. 514) discuss food supply as a concern for Seronera and poaching as the primary cause for giraffe population declines in Kirawira and Bologonja where giraffe populations experienced documented decreases in males. The authors concluded that “the Serengeti giraffe population is now most likely limited by food supply and poaching and that reducing adult mortality from poaching could enhance population growth” (Strauss et al., 2015, p. 506).²⁵ Kiffner et al. (2014, p. 2-3) studied Tanzania’s Tarangire-Manyara ecosystem and identify a poaching hot spot in the Mto Wa Mbu game-controlled area. Masai giraffes made up 9% of the species mentioned by poachers interviewed for the study (ibid., p. 4). Marais et al. (2012, p. 1-2 (Rwanda)) document that “giraffe have been sighted with snares and other injuries, and as such illegal hunting is still considered a potential serious threat” in Rwanda to Masai giraffes.

c) Southern Africa

Du Raan et al. (2016, p. 2 (Namibia)) identify hunting among the threats that extirpated Angolan giraffes from southern Namibia and point to hunting as leading to the absence of giraffes in Namibia's eastern Kunene Region. The authors believe that hunting will increasingly threaten giraffes and that local and international trade must be reviewed given the uptick in giraffe bone carvings at local markets (ibid.). Lindsey et al. (2013, p.11) document declining populations of giraffes near human settlements close to "[h]unting concessions near Okavango, Botswana." Lindsey et al. (2011, p. 97) note that "[e]ven in parts of comparatively affluent countries such as South Africa and Botswana illegal bushmeat hunting is a significant conservation threat."²⁶ Marais et al. (2013, p. 1-2 (Angola)) found that Angolan giraffes were extirpated from Angola due to illegal hunting of the mammals for bushmeat.

As Lindsey et al. (2011, p. 96) explain "[t]here has been little research on the bushmeat trade in southern Africa and information on the topic is limited" but emerging research indicates that South African giraffes are increasingly threatened by hunting for bushmeat. The authors recognize that the bushmeat trade is a conservation concern in South Africa and specifically highlighted illegal hunting of wildlife for bushmeat in southeast Zimbabwe which is a severe threat to remaining populations (ibid., p. 97, 109). Additionally, South African giraffes in Mozambique historically and currently are threatened by the bushmeat trade (Marais et al., 2013, p. 2 (Mozambique)). According to Beyers et al. (2013), giraffes are one of the most threatened large mammal species in Mozambique due to habitat loss and conversion and illegal hunting (cited in Marais et al., 2013, p. 1 (Mozambique)).

5) Giraffe Hair and Tail Trade

Since ancient Egyptian times giraffe tails have been used by humans (Espinoza et al., 2008, p. 240; Muller, 2008, p. 4). Giraffe tails have many uses, serving as symbols of authority, arm bands, and fly swatters (ibid.). Likewise, giraffe hair is used to make bracelets, necklaces, and other jewelry (Muller, 2008, p. 3). Tail hair is used for bracelets or for beaded jewelry (ibid.).

Today, giraffes are still poached or hunted for their tails and hair. In particular, Masai giraffes, Nubian giraffes, reticulated giraffes, Rothschild's giraffes, and South African giraffes are all poached for their tails or tail hair for use in making jewelry (Marais et al., 2013, p. 2 (Ethiopia); Marais et al., 2016, p. 2 (Uganda); Muller, 2008, p. 3; Okello et al., 2015, p. 161; Wube, 2013, p. 3-4). Giraffe tail hair is used in necklaces in Samburu, Kenya (Ocholla et al., 2016, p. 8). Giraffe tails are a status symbol and used as fly swatters by Mondo chiefs in DRC (Marais et al., 2013, p. 2 (DRC)). Giraffe hair crafts and jewelry were also found in tourist shops in Mozambique (Muller, 2008, p. 3).

Additionally, both giraffe and elephant hair have long been used by many cultures, including those beyond Africa (Espinoza et al., 2008, p. 240). Given the similarity of giraffe and elephant

²⁶ Note that giraffes in northern and southern Botswana, northeastern Namibia, western Zimbabwe, and southern Zambia may be South African giraffes (Bock et al., 2014, p. 7), but are provisionally included as Angolan (Muller et al., 2016, p. 5).

hair (ibid.), there is a concern that giraffe hair can be billed as elephant hair and sold in products shipped to Asia and perhaps other destinations.

C) Disease and Predation

Giraffes are susceptible to various diseases that are thought to be impacting their populations. In particular, many giraffes have been observed with Giraffe Skin Disease (GSD), which manifests as chronic and severe scabs, encrustations, and dry or oozing blood on the legs, shoulders, and/or necks of giraffes in many countries including Tanzania, Uganda, Botswana, Namibia, Zimbabwe, Kenya, and South Africa (Lee & Bond, 2016, p. 753; Muneza et al., 2016, p. 147). In Tanzania's Ruaha National Park alone, an estimated 92% of adult giraffes were infected with GSD in 2009 (Epaphras et al., 2012, p. 62). While, thus far, no mortalities have been observed as a result of GSD, this may change as genetic diversity and habitat decrease (Bond et al., 2016, p. 1; Epaphras et al., 2012, p. 60). GSD may also be affecting giraffe populations indirectly through, for example, increased predation or poaching, as some giraffe have reduced mobility as a result of the disease (Bond et al., 2016, p. 5; Epaphras et al., 2012, p. 60, 64; Muneza et al., 2016, p. 154). GSD also increases giraffe's vulnerability to other environmental stressors such as drought and fire (Epaphras et al., 2012, p. 64), as well as to secondary infections at the site of lesions, systemic infections, and other opportunistic infections (Lee & Bond, 2016, p. 753).

As giraffes increasingly interact with livestock due to agricultural expansion, they become more vulnerable to diseases carried by such livestock. In particular, rinderpest disease from cattle has resulted in large-scale giraffe fatalities, including one in the Central African Republic in 1984 from which the country's giraffe population has still not recovered (Marais et al., 2012, p. 2 (CAR)). Anthrax has also led to giraffe deaths, with a 2011 outbreak in Kenya's Mwea National Reserve leading to a severe decline in the reserve's giraffe numbers (Kaitho et al., 2013, p. 47; Marais et al., 2013, p. 4 (Kenya)).

Giraffes also suffer from a variety of other diseases for which the population impact is unknown. For example, Giraffe Ear Disease causes wounds and lesions on the outer ear (Karimuribo et al., 2011, p. 8). Giraffes can become infected with papillomavirus-associated lesions which, while typically benign and self-limiting, occasionally become cancerous (van Dyk et al., 2011, p. 80, 83). Mange has been attributed to giraffe deaths in Kenya (Alasaad et al., 2011, p. 2). Giraffes are also susceptible to Lumpy Skin Disease, a viral disorder that affects a variety of ungulates and can lead to giraffe deaths (Hunter & Wallace, 2001, p. 69).

Natural predation also has a significant effect on giraffe populations, especially due to its impacts on giraffe calves and neonates (Lee et al., 2016, p. 8408). Lions are the primary cause of death for giraffe calves (Dagg, 1971, p. 4), which can suffer 73% mortality in their first of year of life (Foster & Dagg, 1972, p. 11; Strauss & Packer, 2013, p. 134). Lion predation is also a substantial mortality factor for subadults (Hirst, 1969, p. 217-219; Pienaar, 1969, p. 112, 114, p. 12; Strauss & Packer, 2013, p. 134). Further, the impact of lion predation on giraffes is likely to increase. The presence of migratory herds of lions' primary prey, such as wildebeest and zebras, significantly reduce lion predation on giraffe calves and neonates and increase giraffe survival (Lee et al., 2016, p. 8408). Indeed, one study in northern Tanzania's Tarangire ecosystem showed that the absence of migratory herds reduced giraffe survival by 11% and

“apparent reproduction” by 37% compared to seasons where migratory herds were present (ibid.). If populations of such ungulates are further reduced as a result of habitat fragmentation, disrupted migration, and poaching—as they likely will be—giraffe calves may face increased predation pressure from lions and other predators due to increased predator-prey ratios, which will contribute to lower survival rates and population sizes may decrease (ibid.).

D) Inadequacy of Existing Regulatory Mechanisms

1) International Law and Agreements

Currently, international conventions and agreements fail to provide adequate protections for giraffes or their habitat.

a) World Heritage Convention

The United Nations Educational, Scientific and Cultural Organization’s (UNESCO) Convention Concerning the Protection of the World Cultural and Natural Heritage (World Heritage Convention) was adopted in 1972 (UNESCO, 1972) and became effective in 1975. There were one hundred and ninety-two State Parties to the Convention as of June 2016 (UNESCO, 2016a).

The World Heritage Convention establishes a World Heritage Committee, which selects World Heritage Sites nominated by State Parties (UNESCO, 1972, p. 4-6). According to the Convention, these sites may include “geological and physiographical formations and precisely delineated areas which constitute the habitat of threatened species of animals and plants of outstanding universal value from the point of view of science or conservation” (ibid., p. 2). They may also include “natural sites or precisely delineated natural areas of outstanding universal value from the point of view of science, conservation or natural beauty” (ibid.).

Under the Convention, each State Party that is home to a World Heritage Site must endeavor to protect that Site through a variety of means (UNESCO, 1972, p. 3-4). The State Parties also commit to assist in the protection of World Heritage Sites located in other states if such state requests assistance (ibid., p. 4). State Parties also pledge not to take “any deliberate measures which might damage directly or indirectly the cultural and natural heritage” of a World Heritage Site in another state (ibid.).

Many World Heritage Sites provide habitat for wildlife, including giraffe, and thus can contribute to giraffe conservation. For example, Botswana’s Okavango Delta (UNESCO, 2014); Tanzania’s Ngorongoro Conservation Area, Serengeti National Park, and Selous Game Reserve (UNESCO, 1979; UNESCO, 1980; UNESCO, 1982); and the Democratic Republic of Congo’s Virunga and Garamba National Parks (UNESCO, 2015; UNESCO, 2016b) are all World Heritage Sites that provide giraffes with critical habitat (UNESCO, 2016c).

The World Heritage Convention offers many benefits. For example, it provides opportunities for State Parties in which World Heritage Sites are located to obtain funding to help protect such sites via the World Heritage Fund (UNESCO, 1972, p. 7-9). It also helps safeguard World Heritage Sites against extractive activities and destruction or misuse during wartime via the

Geneva Convention (UNESCO, 2013). However, the extent to which a World Heritage Site is protected is largely dependent on the home country's capacity and interest in conservation (UNESCO, 1972, p. 4, 6). Indeed, neither the World Heritage Committee, nor UNESCO, nor the United Nations has any power to force changes in World Heritage Site management upon governments, public agencies, or private parties in any country. Further, Selous Game Reserve, Virunga National Park, and Garamba National Park, among other World Heritage Sites that provide giraffe habitat, are on the list of "World Heritage in Danger," which includes sites that are in potential or ascertained danger, in this case because of rampant poaching and habitat degradation in those areas (UNESCO, undated). While providing important benefits for giraffe conservation, the World Heritage Convention cannot be considered adequate to protect the species or reverse its current decline.

b) The Convention on International Trade in Endangered Species of Wild Fauna and Flora

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is a trade agreement designed to ensure that international trade in animals and plants does not threaten their survival. The Convention recognizes that "wild fauna and flora in their many beautiful and varied forms are an irreplaceable part of the natural systems of the earth which must be protected for this and the generations to come." CITES, preamble (March 3, 1973). Wildlife and plants are protected under CITES by being placed on one of three appendices. Currently, giraffes are not listed on any of the CITES appendices and, thus, the Convention provides no protections for the species.

c) Convention on Migratory Species

As its name implies, the Convention on Migratory Species (CMS) is designed to protect species that migrate between nations. The Convention operates by placing species on one or both appendices. Appendix I is for endangered species or those that "are endanger of extinction throughout all or a significant portion of their range." CMS, Art. I.1.e. Appendix II is for species that "have an unfavorable conservation status and require international agreements, or would significantly benefit from international agreements." CMS, Art. IV.1. Range States are to prohibit take of endangered species and create agreements that protect habitat for Appendix II species. CMS, Art. III.5, Art. V. Giraffes are not listed on the appendices and, therefore, are not protected by this Convention.

2) Regional Agreements

a) African Union

The African Union (AU) is the organizational body created to provide an arena to discuss and develop Africa-wide resolutions and conventions. Formed in 1992 as the successor to the Organization of African Unity, which was created in 1963, the AU's member states include all but one of the 54 African states (Morocco). The AU is governed by an Executive Council that presents conventions on issues of interest to member states (AU, 2015).

The African Convention on the Conservation of Nature and Natural Resources, entered into force in 1969, is one such convention that requires contracting states to “adopt measures to ensure conservation, utilization, and development of soil, water, flora, and faunal resources in accordance with scientific principles and with due regard to the best interests of the people” (AU, 1968, p. 5). The Convention lists giraffes as a “Class B” species which, according to the Convention, “shall be totally protected, but may be hunted, killed, captured or collected under special authorization granted by the competent authority” (AU, 1968, p. 8, 16-17). While 31 countries have ratified the Convention, many with giraffe populations have not, including Angola, Chad, Ethiopia, Namibia, Somalia, South Africa, South Sudan, and Zimbabwe (AU, 2016a, p. 1-2). Moreover, the Convention does not contain any enforcement mechanisms to address noncompliance and does not designate the role and frequency of meetings to update the agreement.

A revised Convention was developed in 2003 that would, among other changes, establish a secretariat to improve the Convention’s executive and implementation functions (AU, 2003, p. 18-19) and update rules pertaining to protected species such as the giraffe (ibid., p. 8-9). However, it has not yet been adopted (AU, 2016b, p. 2). Thus, while the Convention has the potential to aide giraffe conservation in the future, its lack of adoption by key range states and ineffective implementation mechanisms currently make it inadequate to address the precipitous decline giraffes are experiencing throughout their range.

b) Southern Africa Development Community Protocol on Wildlife Conservation and Law Enforcement

The Southern Africa Development Community (SADC), which is an inter-governmental organization of Southern African states, developed the Protocol on Wildlife Conservation and Law Enforcement in 1999. The Protocol, which entered into force in 2003, creates guidelines to foster international cooperation to ensure the “conservation and sustainable use of wildlife resources” under the jurisdiction of each member state (SADC, 1999, p. 3). The Protocol mandates the development and enforcement of legal instruments necessary to conserve wildlife resources, as well as the development and integration of conservation programs (ibid., p. 10-13). It also allows for sanctions if a state is not implementing conservation policies (ibid., p. 17).

The Protocol, however, also promotes “sustainable use” of wildlife, which can include commercial and recreational use of species, but goes no further in determining under what parameters sustainable use can occur for giraffes and many other species. Thus, giraffe conservation has not benefited from the Protocol and it will not protect the species or aide in their recovery.

3) National Laws

a) Range Countries

The 21 giraffe range States have taken a variety of approaches to solving the problems of habitat loss, wildlife trafficking, over-exploitation, and other threats to the species. In general, however,

most stakeholder countries do not have the infrastructure, funding, expertise, or political will to deal with the many different threats giraffe face.

For example, many giraffe range countries have laws prohibiting the hunting of giraffes, including Angola (Marais et al., 2013, p. 1 (Angola)), Cameroon (Marais et al., 2013, p. 1 (Cameroon)), Central African Republic (Marais et al., 2014, p. 2 (CAR)), Chad (Marais et al., 2014, p. 1 (Chad)), DRC (Marais et al., 2013, p. 2 (DRC)), Kenya (Marais et al., 2013, p. 1 (Kenya)), Mozambique (Marais et al., 2013, p. 1 (Mozambique)), Niger (Marais et al., 2014, p. 1 (Niger)), Rwanda (Marais et al., 2012, p. 1 (Rwanda)), South Sudan (Marais et al., 2012, p. 1 (South Sudan)), Uganda (Marais et al., 2016, p. 1 (Uganda)), and Zambia (Du Raan et al., 2015, p. 1). However, most—if not all—of these countries suffer from a severe lack of enforcement capacity that has led to frequent illegal hunting of giraffe for personal consumption, the bushmeat trade, and the legal and illegal international trade in wildlife parts (e.g., tail hair, giraffe bone). The enforcement challenges are attributable to political and social conflicts in giraffe range countries. For example, Chad's strict laws prohibiting the hunting of giraffes have been insufficient in protecting Chad's wildlife against illegal hunting given the political and social conflicts the country has experienced (Marais et al., 2014, p. 2 (Chad)).

Moreover, some giraffe range countries offer only limited protections from giraffe hunting. For example, Ethiopia (Marais et al., 2013, p. 1 (Ethiopia)), Namibia (Du Raan et al., 2016, p. 1), and Swaziland (Marais et al., 2013, p. 1 (Swaziland)) only require a permit versus banning hunting entirely. And other countries like Malawi (Marais et al., 2013, p. 1 (Malawi)) and Somalia (Marais et al., 2013, p. 1 (Somalia)) fail to provide giraffes with any protections from hunting, meaning that no permits or required and the practice is not banned.

Current range countries' laws are also insufficient to prevent habitat destruction and other activities that degrade giraffe habitat. Comprehensive land use planning laws are non-existent in most countries, meaning development may occur wherever there is interest (Du Raan et al., 2015, p. 1-2; Marais et al., 2012, p. 2 (South Sudan)). The low status and capacity of ministries charged with protecting environment, forestry, and agriculture also threaten biodiversity conservation efforts (Du Raan et al., 2015, p. 1-2). Controls on wood harvesting and selling of wood products are inadequate and, as a result, high rates of deforestation are damaging wooded areas giraffes depend on for food (Du Raan et al., 2015, p. 2). Further, most countries lack laws requiring resource extraction projects (e.g., oil exploration) to undergo environmental assessment, management, or planning, enabling resource extraction in or near important giraffe habitat in many range countries (Marais et al., 2012, p. 2 (South Sudan)).

Even protected areas can no longer shelter giraffes from anthropogenic impacts. While many countries have laws creating and protecting national parks, a combination of unfortunate circumstances has led to the degradation of this once-suitable giraffe habitat. This is especially troubling given the fact that in many countries such as Chad and Swaziland, the giraffe population is confined to one or more of these “protected” areas. Many countries lack the resources, training, equipment, motivation, and people to successfully guard park borders and enforce park laws and regulations (Marais et al., 2013, p. 2 (Angola); Marais et al., 2013, p. 2 (Cameroon); Marais et al., 2013, p. 2 (Swaziland); Marais et al., 2014, p. 2 (Chad)). Parks are often managed under faulty decision-making processes (Marais et al., 2014, p. 2 (Chad)). Lack

of financial, human, and logistical resources and infrastructure, as well as authority to safeguard the parks, hinder efficient management (Marais et al., 2013, p. 2 (Angola)).

Additionally, law enforcement is often weak and corrupt, with some local officials facilitating illegal activities in parks (Marais et al., 2014, p. 2 (Niger)). These activities have resulted in the decimation of giraffe populations inside national park borders due to habitat destruction as a result of human encroachment and associated developments (e.g., agriculture, charcoal production); poaching for personal consumption, the bushmeat trade, and the international trade in wildlife parts (e.g., giraffe tails, bones); and extractive activities in and around the parks, among other activities (Marais et al., 2013, p. 2 (Angola); Marais et al., 2013, p. 2 (Cameroon); Marais et al., 2013, p. 2 (Ethiopia); Marais et al., 2013, p. 2 (Swaziland)). For example, poaching and smuggling systems have impacted the wildlife in Chad's Zakouma National Park severely in recent years (Marais et al., 2014, p. 2 (Chad)). And while national parks officially still exist in Somalia, there are no functioning protected areas (Marais et al., 2013, p. 1 (Somalia)).

b) U.S.

i) Endangered Species Act

The Endangered Species Act (ESA) (16 U.S.C. §§ 1531-1544) is one of the most comprehensive laws governing wildlife conservation in the U.S. Under Section 4 of this law, the U.S. Fish and Wildlife Service must “list” species as either “Endangered” or “Threatened,” depending on the extent of the threats to their existence. 16 U.S.C. § 1533. The term “species” includes “any subspecies of fish or wildlife or plants, and any distinct population segment of any species of vertebrate fish or wildlife which interbreeds when mature.” *Id.* § 1532(16). Once a species is listed as Endangered, Section 9 of the ESA (*id.* § 1538(a)) bans the species’ import, export, take, and interstate commerce, with limited exceptions. When a species is listed as Threatened, the Service must issue regulations to conserve the species. *Id.* § 1533(d). The Service’s regulations automatically extend all Section 9 protections to a species listed as Threatened, unless the Service proactively declines such protections when it lists a species. 50 C.F.R. § 17.31(a). The ESA defines the term “conserve” as “to use all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to [the ESA] are no longer necessary.” *Id.* § 1532(3).

Under Section 10 of the ESA, otherwise prohibited acts can be permitted if it will “enhance the propagation or survival of the affected species” or is for scientific research consistent with the conservation purpose of the ESA. 16 U.S.C. § 1539(a)(1)(A); 50 C.F.R. §§ 17.21, 17.22. As the plain language of the statute makes clear, enhancement permits may only be issued for activities that *positively benefit* the species in the wild. *See also* USFWS Handbook for Endangered and Threatened Species Permits (1996) (making clear that an enhancement activity “must go beyond having a neutral effect and actually have a positive effect”).

The giraffe is not currently listed under the ESA. Thus, the law currently does nothing to protect the giraffe.

ii) Lacey Act

The Lacey Act, passed by Congress in 1900, has three primary purposes. First, it prohibits the import, export, transport, acquisition, receipt, sale, or purchase or attempt to engage in such acts of any fish or wildlife taken, possessed, transported, or sold in violation of any U.S. law, treaty, or regulation; state wildlife law or regulation; Indian tribal law; or foreign wildlife law. 16 U.S.C. § 3372(a). Second, the Act makes it illegal to import, export, or transport in interstate commerce, any container or package containing fish or wildlife unless it has been plainly marked, labeled, or tagged in accordance with the Service's requirements. *Id.* § 3372(b). Third, the Lacey Act prohibits the falsification of information, records, or accounts regarding species that have been imported, exported, transported, sold, purchased, or received in interstate or foreign commerce. *Id.* § 3372(d). While the Act is among the most important wildlife trade laws in the U.S., its prohibition on import/export/transport, etc. does not apply to a species unless such species is protected under U.S., foreign, or international law and the specimen was imported or sold in violation of those protections. Giraffes are not protected under U.S. law, are not listed on the Appendices of CITES or CMS, and are not specifically or fully protected by the legal regimes of most foreign countries, including many giraffe range states. Thus, the Lacey Act does not benefit giraffes like it does thousands of other species protected under international and domestic law.

E) Other Natural or Manmade Factors Affecting its Continued Existence

Giraffes also experience a variety of other threats. In particular, recent climatic changes—especially the upsurge in droughts—increasingly threaten giraffe survival (Marais et al., 2014, p. 1 (Guinea); Okello et al., 2015, p. 159). Droughts primarily kill large male and juvenile giraffe, but also affect females by reducing the likelihood that fetuses will survive, and ending lactation, thereby depriving unweaned calves of critical nutrients (Mitchell et al., 2010, p. 167). Climate change may also increase bushfires and reduce food availability for giraffes (Muller et al., 2016, p. 2).

Genetic isolation of giraffe populations is another major threat to the species, especially in West and Central Africa. Indeed, as giraffe populations become smaller and more isolated, they are increasingly susceptible to threats like disease, natural catastrophes, and environmental changes that make them more vulnerable to extinction (Du Raan et al., 2015, p. 2). For example, the entire population of Thornicroft's giraffe is confined to Zambia's Luangwa Valley, rendering them particularly at risk (*ibid.*). Genetic isolation also reduces genetic diversity and leads to inbreeding, which can cause very high infant mortality rates—as seen in Malawi's Nyala Game Park—as well as weak and non-disease resistant offspring (Marais et al., 2013, p. 2 (Malawi)). Indeed, maintaining genetic diversity in giraffes has required a number of giraffe translocations in recent years (Muller et al., 2016, p. 7-8).

Additionally, giraffes are negatively impacted by farmers using snares and guns to protect crops from damage (Dagg, 2014, p. 15)—an increasingly frequent occurrence as the expansion of cultivated land leads to more interactions between giraffes and humans (Leroy et al., 2009, p. 2665). This is especially true in West Africa and in communities adjacent to protected areas (Marais et al., 2013, p. 3 (Kenya); Muller et al., 2016, p. 6-7). Indeed, researchers found that

87% of surveyed farmers in villages affected by giraffes in Niger viewed giraffes as a disadvantage, despite the benefits they or their relatives derived from tourism revenue from the species (Leroy et al., 2009, p. 2669). In Zambia, snaring likely aimed at other animals also poses a threat to giraffes with reports of up to five giraffes snaring incidents per year (Du Raan et al., 2015, p. 3).

Civil unrest, including ethnic violence, rebel militias, and paramilitary and military operations—particularly in East and Central Africa—present other threats to giraffes (Du Raan et al., 2015, p. 3; Muller et al., 2016, p. 6). For example, armies in many countries irresponsibly consume ecological resources like timber that giraffes and other wildlife need for sustenance (Marais et al., 2014, p. 1 (Eritrea)). Gunshots and air raids regularly set fire to woodlands, destroying habitat (ibid.), and armies shoot animals illegally for personal consumption (Marais et al., 2012, p. 2 (South Sudan)). Kordofan giraffes have experienced significant declines in Chad (Marais et al., 2014, p. 1-2 (Chad)), CAR (Marais et al., 2012, p. 2 (CAR)), Cameroon (Marais et al., 2013, p. 2 (Cameroon)), and DRC (Marais et al., 2013, p. 2 (DRC)) due to social unrest, ethnic conflicts, civil war, and guerrilla insurgents in these countries. The lengthy civil war in Sudan and the ongoing effects of displaced people and refugees have impacted giraffe habitat in South Sudan (Marais et al., 2012, p. 2 (South Sudan)).²⁷ Civil unrest has also contributed to decline of populations of West African giraffe in Niger (Marais et al., 2014, p. 1 (Niger)), Rothschild's giraffe in Uganda (Marais et al., 2016, p. 2 (Uganda)), reticulated giraffe in Kenya (Marais et al., 2013, p. 3 (Kenya)), Masai giraffe in Rwanda (Marais et al., 2012, p. 2 (Rwanda)), and Angolan or South African giraffe in Zambia (Du Raan et al., 2015, p. 3).

Natural resources exploitation, including diamond and gold mining and petroleum exploration, also endangers giraffe populations—particularly the Kordofan giraffe and Thornicroft's giraffe (Du Raan et al., 2015, p. 3; Marais et al., 2012, p. 2 (South Sudan); Marais et al., 2013, p. 2 (Cameroon)).

Giraffe mortalities have also occurred due to collisions with cars, especially where public roads and train rails pass through wildlife areas as in the case of Swaziland's Hilane Royal National Park (Marais et al., 2013, p. 2 (Swaziland)).

The International Union for the Conservation of Nature (IUCN) and its World Conservation Congress have also recognized the vulnerability of giraffes to extinction. The IUCN is a global authority on the status of the natural world and the measures needed to safeguard it. The World Conservation Congress is designed to “conserv[e] the environment and harness[] the solutions nature offers to global challenges” (“World Conservation Congress.” *IUCN*. IUCN, 15 Nov. 2016. Web. 25 Jan. 2017). At the last Congress in September 2016, the IUCN parties adopted a motion (#008) entitled “Giraffids: reversing the decline of Africa's iconic megafauna,” which calls on the IUCN, donors, and others to raise awareness of giraffid declines and increase fundraising and capacity building for management and monitoring of giraffid range state protected areas, including developing and/or supporting an Africa-wide Giraffe Conservation Strategy and Action Plan. The motion also calls on IUCN member states, giraffid range states, and others to help restore the integrity and security of threatened protected areas. While the

²⁷ Giraffe in South Sudan may be Kordofan giraffes or Nubian giraffes (Marais et al., 2012, p. 4 (South Sudan)).

passage of this motion represents an important step towards increasing giraffe conservation and spreading awareness regarding the threats giraffes face, it is completely discretionary. In other words, IUCN members who do not adhere to the motion's directives will not be penalized in any way.

VI) Conclusion

This Petition demonstrates that the giraffe population is declining and the species is losing habitat, is being over-utilized, and is threatened by drought, climate change, genetic isolation, predation, and civil unrest. As such, *Giraffa camelopardalis* is currently in danger of extinction throughout all or a significant portion of its range and needs to be protected as an endangered species under the Endangered Species Act. There are inadequate regulatory mechanisms in place to address the on-going habitat loss, poaching, trade, drought, civil unrest, and other threats to this species. With fewer than 80,000 giraffes left in the wild, now is the time for immediate action.

As a conservation leader and significant importer of giraffes and giraffe parts, the U.S. is uniquely positioned to help conserve these tall, graceful and iconic animals. An Endangered listing would protect giraffes from harmful trade and allow the U.S. to take a leadership role in international giraffe conservation. Protecting giraffes under the Endangered Species Act will also raise public awareness about the plight and decline of these unique mammals. Considering the on-going threats to giraffes and their small remaining populations, now is the time for Endangered Species Act protections for this seriously and increasingly imperiled species.

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Annex A

Table 1. Total U.S. Giraffe Imports that are equivalent to individual animals (Bodies, Live, and Trophies), 2006-2015, all sources and all purposes.

Wildlife Description	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	TOTALS
Bodies	0	0	1	1	0	0	0	1	0	0	3
Live	0	0	0	0	3	0	0	1	0	0	4
Trophies	425	372	339	405	280	328	342	408	386	459	3,744
TOTAL	425	372	340	406	283	328	342	410	386	459	3,751

Source: LEMIS data obtained from United States Fish and Wildlife Service through FOIA requests between 2006 and 2015, filtered for imports of Giraffa camelopardalis.

Table 2. Total U.S. Giraffe Imports, 2006-2015, wild sources for all purposes.

Wildlife Description	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	TOTALS
Bodies	0	0	1	1	0	0	0	1	0	0	3
Bone Carvings	2,933	4,194	1,640	2,735	1,736	207	786	1,418	1,494	4,221	21,364
Bones	167	65	487	345	77	1403	346	434	771	679	4,774
Bone Pieces	1,691	2	15	9	10	2	37	7	64	54	1,891
Carapaces	0	0	38	0	0	0	0	0	0	1	39
Ears	0	0	0	0	0	0	0	0	1	0	1
Eggshells	0	2	0	0	0	0	0	0	0	0	2
Feet	18	9	22	37	45	29	69	58	23	29	339
Genitalia	0	0	2	1	0	0	0	0	1	2	6
Hair	0	0	1	400	0	2	4	81	0	6	494
Hair Products	10	0	0	2	2	0	1	0	3	100	118
Horn Carvings	0	0	0	0	0	2	0	63	48	87	200
Horns	0	0	0	0	0	0	3	0	0	0	3
Jewelry	53	66	670	0	10	0	5	9	5	7	825
Leather Products Large	2	3	6	18	32	9	11	57	74	108	320
Leather Products	5	4	3	1	1	3	42	147	55	102	363

Small											
Legs	0	0	0	0	0	0	0	1	0	0	1
Live	0	0	0	0	0	0	0	0	0	0	0
Plates	0	0	0	0	0	0	0	3	2	3	8
Rug	15	6	14	5	6	0	2	8	1	5	62
Shell Product	0	0	0	0	0	0	0	0	0	0	0
Shoes	0	0	0	0	0	0	0	2	0	518	520
Skeletons	0	0	0	0	0	0	0	0	0	64	64
Skins	12	22	115	19	306	9	18	22	161	165	849
Skin Pieces	50	310	85	133	34	245	62	704	465	920	3,008
Skulls	13	2	14	12	32	29	6	5	4	27	144
Specimens	1	0	0	19	0	0	50	6	0	25	101
Shell Products	0	0	0	0	0	0	0	0	50	0	50
Tails	1	0	1	14	7	6	18	7	5	5	64
Teeth	0	0	0	0	1	0	0	0	0	2	3
Trim	0	2	3	4	0	9	0	0	0	2	20
Trophies	424	372	339	404	276	328	342	408	385	459	3,737
Unspecified	10	0	0	0	1	0	0	1	2	0	14
Wood Products	0	0	0	6	0	1	0	3	0	0	10
TOTAL	5,405	5,059	3,456	4,165	2,576	2,284	1,802	3,445	3,614	7,591	39,397

Source: LEMIS data obtained from United States Fish and Wildlife Service through FOIA requests between 2006 and 2015, filtered for wild-sourced imports of *Giraffa camelopardalis*.

Table 3. Total U.S. Giraffe Imports, 2006-2015, captive-bred sources for all purposes.

Wildlife Description	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	TOTALS
Bone Carvings	0	0	0	0	0	0	0	0	1	0	1
Bones	0	0	0	0	0	0	1	0	0	0	1
Hair	0	0	0	0	0	1	0	0	0	0	1
Leather Products Large	0	0	0	0	0	2	0	0	2	0	4

Leather Products Small	0	0	0	0	0	0	0	0	3	0	3
Live	0	0	0	0	0	1	0	0	0	0	1
Rug	0	0	1	0	0	0	0	0	0	0	1
Shoes	0	0	0	0	0	0	0	0	8	0	8
Skins	4	0	0	0	0	0	0	0	2	0	6
Skulls	0	0	0	0	0	0	0	1	0	0	1
Trim	0	0	0	0	0	0	0	1	0	0	1
Trophies	1	0	0	1	0	0	0	0	1	0	3
TOTAL	5	0	1	1	0	4	1	2	17	0	31

Source: LEMIS data obtained from United States Fish and Wildlife Service through FOIA requests between 2006 and 2015, filtered for imports of captive-bred *Giraffa camelopardalis*.

Table 4. Total U.S. Giraffe Imports, 2006-2015, captive-born sources for all purposes.

Wildlife Description	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	TOTALS
Bone Carvings	0	0	0	0	0	0	0	0	0	1	1
Live	0	0	0	0	3	0	0	0	0	0	3
Trophies	0	0	0	0	1	0	0	0	0	0	1
TOTAL	0	0	0	0	4	0	0	0	0	1	5

Source: LEMIS data obtained from United States Fish and Wildlife Service through FOIA requests between 2006 and 2015, filtered for imports of captive-born *Giraffa camelopardalis*.

Table 5. Total U.S. Giraffe Imports, 2006-2015, ranched sources for all purposes.

Wildlife Description	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	TOTALS
Bone Carvings	0	0	0	0	0	0	0	0	0	5	5
Bones	0	0	0	0	0	0	1	0	4	7	12
Hair	0	0	0	0	0	0	0	0	0	5	5
Horn Carvings	0	0	0	0	0	1	0	0	0	0	1
Horns	0	0	0	0	0	2	0	0	0	0	2
Trophies	0	0	0	0	3	0	0	0	0	0	3
TOTAL	0	0	0	0	3	3	1	0	4	17	28

Source: LEMIS data obtained from United States Fish and Wildlife Service through FOIA requests between 2006 and 2015, filtered for imports of *Giraffa camelopardalis*.

Table 6. Total U.S. Giraffe Imports, 2006-2015, unknown sources and all purposes.

Wildlife Description	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	TOTALS
Bone Carvings	0	0	1	0	0	0	0	0	0	0	1
Bone Pieces	0	0	0	0	0	0	0	0	0	12	12
Leather Products, Large	0	0	0	0	0	0	0	1	0	0	1
Unspecified	0	0	0	2	0	0	0	0	0	0	2
TOTAL	0	0	1	2	0	0	0	1	0	12	16

Source: LEMIS data obtained from United States Fish and Wildlife Service through FOIA requests between 2006 and 2015, filtered for imports of *Giraffa camelopardalis* from unknown sources.

Table 7. Total U.S. Giraffe Exports, 2006-2015, wild sources and all purposes.

Wildlife Description	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	TOTAL
Bone Carvings	0	21	0	0	0	0	0	1	8	21	51
Bones	0	0	0	1	0	0	0	0	0	0	1
Bone Pieces	0	0	0	0	0	0	0	8	7	18	33
Feet	0	0	0	4	0	1	0	0	0	1	6
Jewelry	0	0	700	0	0	0	0	0	0	0	700
Leather Products Large	0	0	0	0	0	0	0	0	1	3	4
Leather Products Small	0	0	0	0	4	0	0	0	0	0	4
Plates	0	0	0	1	0	0	0	0	0	0	1
Rug	0	0	0	1	0	0	0	0	0	0	1
Shoes	0	0	0	0	52	8	40	12	22	0	134
Skins	2	0	0	0	0	1	1	1	122	23	150
Skin Pieces	0	0	0	0	0	0	0	0	11	1	12
Skulls	0	0	0	2	0	0	0	1	2	1	6

Trophies	1	3	2	2	1	9	2	3	1	3	27
TOTAL	3	24	702	11	57	19	43	26	174	71	1,130

Source: LEMIS data obtained from United States Fish and Wildlife Service through FOIA requests between 2006 and 2015, filtered for wild-source exports of Giraffa camelopardalis.

Table 8. Total U.S. Giraffe Exports, 2006-2015, captive-bred sources and all purposes.

Wildlife Description	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	TOTALS
Hair	0	0	0	0	0	0	1	0	0	0	1
Live	2	9	1	0	9	4	4	4	10	12	55
Skeletons	0	0	1	0	2	0	0	0	0	0	3
TOTAL	2	9	2	0	11	4	5	4	10	12	59

Source: LEMIS data obtained from United States Fish and Wildlife Service through FOIA requests between 2006 and 2015, filtered for exports of captive-bred Giraffa camelopardalis.

Table 9. Total U.S. Giraffe Exports, 2006-2015, captive-born sources and all purposes.

Wildlife Description	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	TOTALS
Hair	0	0	0	0	0	0	1	0	0	0	1
Live	2	9	1	0	9	4	4	4	10	12	55
Skeletons	0	0	1	0	2	0	0	0	0	0	3
TOTAL	2	9	2	0	11	4	5	4	10	12	59

Source: LEMIS data obtained from United States Fish and Wildlife Service through FOIA requests between 2006 and 2015, filtered for exports of captive-born Giraffa camelopardalis.

Table 10. Total U.S. Giraffe Exports, 2006-2015, ranched sources and all purposes.

Wildlife Description	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	TOTALS
Live	0	0	0	0	0	0	0	0	3	0	3
TOTAL	0	0	0	0	0	0	0	0	3	0	3

Source: LEMIS data obtained from United States Fish and Wildlife Service through FOIA requests between 2006 and 2015, filtered for exports of ranched Giraffa camelopardalis.

Table 11. Total U.S. Giraffe Imports, 2006-2015, all sources, commercial purposes, seized parts and products.

Wildlife Description	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	TOTAL
Bone	3	0	0	3	0	0	2	0	1	0	9

Carvings											
Bones	0	0	0	4	0	0	0	0	0	0	4
Jewelry	50	0	0	0	0	0	0	0	0	0	50
Leather Products Small	2	0	0	0	0	0	0	0	0	0	2
Trophies	0	0	0	0	0	0	5	0	0	0	5
TOTAL	55	0	0	7	0	0	7	0	1	0	70

Source: LEMIS data obtained from United States Fish and Wildlife Service through FOIA requests between 2006 and 2015, filtered for imports of seized Giraffa camelopardalis parts or products imported for commercial purposes.

Table 12. Total U.S. Giraffe Imports, 2006-2015, all sources, hunting trophy purposes.

Wildlife Description	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	TOTAL
Bone Carvings	12	41	16	9	9	3	14	3	29	38	174
Bodies	0	0	1	0	0	0	0	0	0	0	1
Bones	25	11	7	149	22	10	8	38	505	38	813
Bone Pieces	1	0	5	0	0	2	0	1	3	0	12
Carapaces	0	0	0	0	0	0	0	0	0	1	1
Ears	0	0	0	0	0	0	0	0	1	0	1
Feet	18	8	0	0	12	1	6	13	12	29	99
Genitalia	0	0	2	1	0	0	0	0	0	2	5
Hair	4	0	0	0	0	0	0	0	2	0	6
Hair Products	4	0	0	0	0	0	0	0	2	0	6
Jewelry	0	0	0	0	0	0	0	0	2	7	9
Leather Products Large	2	3	0	6	23	1	1	7	8	28	79
Leather Products Small	0	0	0	0	0	0	0	0	0	17	17
Legs	0	0	0	0	0	0	0	1	0	0	1
Live	0	0	0	0	0	0	0	1	0	0	1
Plates	0	0	0	0	0	0	0	1	0	1	2

Rug	0	1	0	1	0	0	2	0	1	2	7
Skins	6	9	24	3	1	5	5	10	21	31	115
Skin Pieces	11	14	8	4	1	3	1	5	1	36	84
Skulls	5	2	0	1	3	3	3	2	2	9	30
Tails	0	0	0	0	0	3	0	0	1	5	9
Trim	0	2	0	0	0	4	0	0	0	1	7
Trophies	298	369	339	402	276	318	318	405	379	457	3,561
Unspecified	0	0	0	0	0	0	0	0	2	0	2
Wood Products	0	0	0	2	0	0	0	0	0	0	2
TOTAL	386	460	402	578	347	353	358	487	971	702	5,044

Source: LEMIS data obtained from United States Fish and Wildlife Service through FOIA requests between 2006 and 2015, filtered for imports of Giraffa camelopardalis parts or products imported for hunting trophy purposes.

Table 13. Top Five Countries of Export of Giraffe Hunting Trophies to the U.S., 2006-2015, all sources, hunting trophy purposes.

Country	TOTAL
South Africa	3,065
Zimbabwe	1,346
Namibia	575
Botswana	24
Zambia	7

Source: LEMIS data obtained from United States Fish and Wildlife Service through FOIA requests between 2006 and 2015, filtered for imports of Giraffa camelopardalis parts or products imported for hunting trophy purposes.

Table 14. Total U.S. Giraffe Exports, 2006-2015, all sources, hunting trophy purposes.

Wildlife Description	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	TOTAL
Bone Carvings	0	0	0	0	0	0	0	0	0	4	4
Bones	0	0	0	1	0	0	0	0	0	0	1
Feet	0	0	0	4	0	0	0	0	0	1	5
Plates	0	0	0	1	0	0	0	0	0	0	1

Rug	0	0	0	1	0	0	0	0	0	0	1
Skulls	0	0	0	2	0	0	0	0	0	1	3
Trophies	0	2	1	1	0	3	1	0	0	3	11
TOTAL	0	2	1	10	0	3	1	0	0	9	26

Source: LEMIS data obtained from United States Fish and Wildlife Service through FOIA requests between 2006 and 2015, filtered for imports of Giraffa camelopardalis parts or products exported for hunting trophy purposes.

Table 15. Total U.S. Giraffe Imports, 2006-2015, all sources, scientific purposes.

Wildlife Description	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	TOTAL
Hair	0	0	0	0	0	0	0	0	0	6	6
Specimens	1	0	0	19	0	0	0	0	0	25	45
Teeth	0	0	0	0	0	0	0	0	0	2	2
TOTAL	1	0	0	19	0	0	0	0	0	33	53

Source: LEMIS data obtained from United States Fish and Wildlife Service through FOIA requests between 2006 and 2015, filtered for imports of Giraffa camelopardalis parts or products exported for scientific purposes.

Table 16. Total U.S. Giraffe Imports, 2006-2015, all sources, personal purposes.

Wildlife Description	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	TOTAL
Bone Carvings	13	3	14	19	28	41	42	75	48	60	343
Bodies	0	0	0	1	0	0	0	0	0	0	1
Bones	0	0	6	25	17	34	19	48	47	12	208
Bone Pieces	12	2	10	4	1	0	2	3	0	0	34
Carapaces	0	0	3	0	0	0	0	0	0	0	3
Eggshells	0	2	0	0	0	0	0	0	0	0	2
Feet	0	1	10	8	8	22	23	39	11	0	122
Genitalia	0	0	0	0	0	0	0	0	1	0	1
Hair	0	0	1	1	0	0	0	0	0	5	7
Hair Products	6	0	0	2	2	0	1	0	1	0	12
Horn Carvings	0	0	0	0	0	0	0	0	1	0	1
Jewelry	3	20	0	0	10	0	5	9	3	0	50

Leather Products Large	0	0	6	12	9	10	6	30	31	4	108
Leather Products Small	1	0	3	1	1	3	1	10	14	1	35
Plates	0	0	0	0	0	0	0	2	2	2	6
Rug	0	0	4	2	1	0	0	8	0	1	16
Shoes	0	0	0	0	0	0	0	2	0	0	2
Skins	3	1	6	2	2	2	5	3	0	1	25
Skin Pieces	0	0	8	38	12	1	3	21	8	13	104
Skulls	3	0	2	0	0	0	3	1	1	1	11
Tails	1	0	1	9	7	3	18	7	4	0	50
Trim	0	0	3	4	0	5	0	0	0	1	13
Trophies	2	3	0	1	3	7	7	1	4	1	29
Unspecified	0	0	0	2	1	0	0	1	0	0	4
Wood Products	0	0	0	4	0	1	0	3	0	0	8
TOTAL	44	32	77	135	102	129	135	263	176	102	1,195

Source: LEMIS data obtained from United States Fish and Wildlife Service through FOIA requests between 2006 and 2015, filtered for imports of *Giraffa camelopardalis* parts or products imported for personal purposes.

Table 17. Total U.S. Giraffe Imports, 2006-2015, all sources, circus or traveling exhibition purposes.

Wildlife Description	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	TOTAL
Bodies	0	0	0	0	0	0	0	1	0	0	1
Feet	0	0	0	0	0	1	0	0	0	0	1
Hair	0	0	0	0	0	1	0	0	0	0	1
Specimens	0	0	0	0	0	0	0	6	0	0	6
TOTAL	0	0	0	0	0	2	0	7	0	0	9

Source: LEMIS data obtained from United States Fish and Wildlife Service through FOIA requests between 2006 and 2015, filtered for imports of *Giraffa camelopardalis* parts or products exported for circus or traveling exhibition purposes.

Table 18. Total U.S. Giraffe Exports, 2006-2015, all sources, personal purposes.

Wildlife Description	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	TOTAL
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Bone Carvings	0	0	0	0	0	0	0	0	8	9	17
Bone Pieces	0	0	0	0	0	0	0	8	0	0	8
Skin Pieces	0	0	0	0	0	0	0	0	0	1	1
Trophies	0	0	0	0	0	0	1	3	0	0	4
TOTAL	0	0	0	0	0	0	1	11	8	10	30

Source: LEMIS data obtained from United States Fish and Wildlife Service through FOIA requests between 2006 and 2015, filtered for imports of Giraffa camelopardalis parts or products exported for personal purposes.

Table 19. Total U.S. Giraffe Exports, 2006-2015, all sources, zoo purposes.

Wildlife Description	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	TOTAL
Live	4	1	0	0	0	0	2	4	5	8	24
TOTAL	4	1	0	0	0	0	2	4	5	8	24

Source: LEMIS data obtained from United States Fish and Wildlife Service through FOIA requests between 2006 and 2015, filtered for imports of Giraffa camelopardalis parts or products exported for zoo purposes.

Table 20. Total U.S. Giraffe Imports from Botswana, 2006-2015, all sources, all purposes.

Wildlife Description	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	TOTALS
Jewelry	0	0	0	0	0	0	0	0	2	0	2
Skins	0	0	0	0	0	0	0	1	0	0	1
Trophies	0	1	1	2	1	1	2	4	5	4	21
TOTAL	0	1	1	2	1	1	2	5	7	4	24

Source: LEMIS data obtained from United States Fish and Wildlife Service through FOIA requests between 2006 and 2015, filtered for imports of Giraffa camelopardalis parts or products imported from Botswana.

Table 21. Total U.S. Giraffe Imports from Ethiopia, 2006-2015, all sources, all purposes.

Wildlife Description	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	TOTALS
Trophies	0	0	1	0	0	0	0	0	0	0	1
TOTAL	0	0	1	0	0	0	0	0	0	0	1

Source: LEMIS data obtained from United States Fish and Wildlife Service through FOIA requests between 2006 and 2015, filtered for imports of Giraffa camelopardalis parts or products imported from Ethiopia.

Table 22. Total U.S. Giraffe Imports from Kenya, 2006-2015, all sources, all purposes.

Wildlife Description	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	TOTALS
Bone Carvings	0	125	0	0	0	0	0	0	0	0	125
Jewelry	3	0	0	0	0	0	0	0	0	0	3
TOTAL	3	125	0	0	0	0	0	0	0	0	128

Source: LEMIS data obtained from United States Fish and Wildlife Service through FOIA requests between 2006 and 2015, filtered for imports of Giraffa camelopardalis parts or products imported from Kenya.

Table 23. Total U.S. Giraffe Imports from Namibia, 2006-2015, all sources, all purposes.

Wildlife Description	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	TOTALS
Bone Carvings	0	0	0	2	2	2	17	2	1	0	26
Bones	0	40	1	4	0	0	2	0	4	5	56
Bone Pieces	0	0	2	0	0	0	2	0	0	0	4
Feet	4	0	0	0	0	5	0	7	4	0	20
Genitalia	0	0	0	1	0	0	0	0	0	2	3
Hair Products	5	0	0	0	0	0	0	0	0	0	5
Leather Products Small	0	0	0	0	0	0	0	1	0	0	1
Legs	0	0	0	0	0	0	0	1	0	0	1
Skins	2	2	0	1	0	1	1	4	3	1	15
Skin Pieces	1	0	0	0	0	0	0	3	0	0	4
Skulls	1	0	0	0	1	1	0	0	0	0	3
Specimens	0	0	0	19	0	0	0	0	0	0	19
Shell Products	0	0	0	0	0	0	0	0	0	0	0
Tails	0	0	0	0	0	3	0	0	0	0	3
Trophies	37	72	48	54	53	52	56	41	53	56	522
Unspecified	0	0	0	0	0	0	0	0	1	0	1
Wood Products	0	0	0	2	0	0	0	0	0	0	2
TOTAL	50	114	51	83	56	64	78	59	66	64	685

Source: LEMIS data obtained from United States Fish and Wildlife Service through FOIA requests between 2006 and 2015, filtered for imports of Giraffa camelopardalis parts or products imported from Namibia.

Table 24. Total U.S. Giraffe Imports from Nigeria, 2006-2015, all sources, all purposes.

Wildlife Description	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	TOTALS
Skins	0	0	0	1	0	0	0	0	0	0	1
TOTAL	0	0	0	1	0	0	0	0	0	0	1

Source: LEMIS data obtained from United States Fish and Wildlife Service through FOIA requests between 2006 and 2015, filtered for imports of *Giraffa camelopardalis* parts or products imported from Nigeria.

Table 25. Total U.S. Giraffe Imports from South Africa, 2006-2015, all sources, all purposes.

Wildlife Description	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	TOTALS
Bodies	0	0	1	1	0	0	0	0	0	0	2
Bone Carvings	2,922	4,044	1,230	2,524	1,715	219	749	1,383	1,463	4,202	20,451
Bones	161	21	454	176	56	1385	333	383	757	664	4,390
Bone Pieces	1,679	1	1	6	8	0	35	4	73	54	1,861
Carapaces	0	0	38	0	0	0	0	0	0	1	39
Ears	0	0	0	0	0	0	0	0	1	0	1
Eggshells	0	2	0	0	0	0	0	0	0	0	2
Feet	8	5	14	29	42	21	63	37	19	29	267
Genitalia	0	0	2	0	0	0	0	0	1	0	3
Hair	0	0	1	0	0	2	4	50	0	0	57
Hair Products	4	0	0	2	0	0	1	0	3	100	110
Horn Carvings	0	0	0	0	0	3	0	63	48	87	201
Horns	0	0	0	0	0	2	3	0	0	0	5
Jewelry	0	46	0	0	5	0	5	9	3	0	68
Leather Products Large	2	0	1	8	23	8	3	46	41	33	165
Leather Products Small	0	0	3	1	1	1	0	66	14	86	172
Plates	0	0	0	0	0	0	0	1	1	3	5
Rug	15	6	11	2	5	0	2	3	1	3	48
Skeletons	0	0	0	0	0	0	0	0	0	64	64
Skins	7	16	42	8	2	5	13	15	27	31	166
Skin Pieces	37	296	22	8	23	3	5	164	30	109	697

Skulls	11	1	11	10	30	27	3	4	2	21	120
Specimens	1	0	0	0	0	0	50	0	0	0	51
Shell Products	0	0	0	0	0	0	0	0	50	0	50
Tails	0	0	0	7	2	1	0	4	1	3	18
Teeth	0	0	0	0	1	0	0	0	0	0	1
Trim	0	0	0	0	0	1	0	1	0	2	4
Trophies	276	200	189	206	149	204	200	224	251	311	2,210
Unspecified	10	0	0	0	1	0	0	1	1	0	13
Wood Products	0	0	0	0	0	1	0	3	0	0	4
TOTAL	5,133	4,638	2,020	2,988	2,063	1,883	1,469	2,461	2,787	5,803	31,245

Source: LEMIS data obtained from United States Fish and Wildlife Service through FOIA requests between 2006 and 2015, filtered for imports of *Giraffa camelopardalis* parts or products imported from South Africa.

Table 26. Total U.S. Giraffe Imports from Tanzania, 2006-2015, all sources, all purposes.

Wildlife Description	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	TOTALS
Hair Products	1	0	0	0	0	0	0	0	0	0	1
Jewelry	0	20	670	0	0	0	0	0	0	0	690
Trophies	0	0	0	0	0	0	0	0	0	1	1
TOTAL	1	20	670	0	0	0	0	0	0	1	692

Source: LEMIS data obtained from United States Fish and Wildlife Service through FOIA requests between 2006 and 2015, filtered for imports of *Giraffa camelopardalis* parts or products imported from Tanzania.

Table 27. Total U.S. Giraffe Imports from Zambia, 2006-2015, all sources, all purposes.

Wildlife Description	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	TOTALS
Bone Carvings	1	0	0	0	0	0	0	0	0	0	1
Hair	0	0	0	0	0	0	0	0	0	6	6
Specimens	0	0	0	0	0	0	0	0	0	25	25
Teeth	0	0	0	0	0	0	0	0	0	2	2
Trophies	1	0	2	0	0	1	0	0	1	2	7
TOTAL	2	0	2	0	0	1	0	0	1	35	41

Source: LEMIS data obtained from United States Fish and Wildlife Service through FOIA requests between 2006 and 2015, filtered for imports of *Giraffa camelopardalis* parts or products imported from Zambia.

Table 28. Total U.S. Giraffe Imports from Zimbabwe, 2006-2015, all sources, all purposes.

Wildlife Description	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	TOTALS
Bone Carvings	10	25	10	4	16	14	20	24	30	19	172
Bones	1	4	31	165	21	18	15	50	10	17	332
Bone Pieces	1	1	12	3	1	2	0	3	3	0	26
Feet	6	4	8	8	3	2	6	14	0	0	51
Hair	0	0	0	400	0	0	0	0	0	0	400
Jewelry	50	0	0	0	5	0	0	0	0	7	62
Leather Products Large	0	3	5	10	9	3	8	11	35	75	159
Leather Products Small	5	4	0	0	0	2	42	80	43	16	192
Plates	0	0	0	0	0	0	0	2	1	0	3
Rug	0	0	3	3	1	0	0	5	0	2	14
Skins	3	4	73	9	302	3	4	2	131	131	662
Skin Pieces	7	14	61	125	11	242	57	537	435	811	2,300
Skulls	2	1	2	2	1	1	3	2	2	6	22
Tails	0	0	1	7	5	2	18	3	4	2	42
Trim	0	2	3	4	0	8	0	0	0	0	17
Trophies	109	99	96	142	76	70	83	137	75	84	971
Wood Products	0	0	0	4	0	0	0	0	0	0	4
TOTAL	194	161	305	886	451	367	256	870	769	1,170	5,429

Source: LEMIS data obtained from United States Fish and Wildlife Service through FOIA requests between 2006 and 2015, filtered for imports of *Giraffa camelopardalis* parts or products imported from Zimbabwe.

Annex B

Table 29. Giraffe ESA Petition - Sample Giraffe Products Available for Sale Online (December 2016).

Item Description	Quantity Offered	Cost (USD)/ Item	Total Cost	Website	Manufacturer Title	Seller Title	Seller Address	Country	Search Date
Bag	N/A	400	400	https://www.1stdibs.com/furniture/decorative-objects/bowls-baskets/decorative-bowls/primitive-kenyan-giraffe-hide-bag/id-f_3273082/?utm_content=test&gclid=CjwKEAiA_jvrBBRDxm_nRusW3q1QSJAAzRI1t-j9ubvdcee5UdBGjZT3oOr9DNm4W9KK3DExLyKg6ExoCnh_wcB	Kenyan Tribe	1stdibs.com	51 Astor Place 3rd Floor New York, NY 10003`	USA	30.11.2016
Bone	10	28.2	282	http://www.mercorne.fr/EN/HOME.aspx	N/A	Mercorne	Llozère	France	14.12.2016
Bone	9	5.2	46.8	http://www.mercorne.fr/EN/HOME.aspx	N/A	Mercorne	Llozère	France	14.12.2016
Bone	8	30.3		http://www.mercorne.fr/EN/HOME.aspx	N/A	Mercorne	Llozère	France	14.12.2016
Bone	5	94	570	http://www.mercorne.fr/EN/HOME.aspx	N/A	Mercorne	Llozère	France	14.12.2016
Bone	5	33.42		http://www.mercorne.fr/EN/HOME.aspx	N/A	Mercorne	Llozère	France	14.12.2016
Bone	5	92.9		http://www.mercorne.fr/EN/HOME.aspx	N/A	Mercorne	Llozère	France	14.12.2016
Bone	4	10.4	41.6	http://www.mercorne.fr/EN/HOME.aspx	N/A	Mercorne	Llozère	France	14.12.2016

Bone	4	23		http://www.mercome.fr/EN/HOME.aspx	N/A	Mercor ne	Llozère	France	14.12. 2016
Bone	2	33.4	66.8	http://www.mercome.fr/EN/HOME.aspx	N/A	Mercor ne	Llozère	France	14.12. 2016
Bone	2	24		http://www.mercome.fr/EN/HOME.aspx	N/A	Mercor ne	Llozère	France	14.12. 2016
Bone	1	39.69		http://www.mercome.fr/EN/HOME.aspx	N/A	Mercor ne	Llozère	France	14.12. 2016
Bone Block	33	46.5	1534. 5	http://www.knifemaking.com/category-s/1171.htm	N/A	Jantz Supply	Jantz Supply 309 W Main Davis, OK 73030	USA	14.12. 2016
Bone Cylinder	1	17.76	17.76	http://www.mercome.fr/EN/HOME.aspx	N/A	Mercor ne	Llozère	France	14.12. 2016
Bone Earrings	N/A	10	10	http://www.africancraftsmarket.com/Bone-earring_details.htm	N/A	African Crafts Market	Richard Stead African Crafts Market PO Box 10123 Meerens ee 3901 KwaZulu Natal South Africa.	South Africa	30.11. 2016

Bone Earrings	N/A	10	10	http://www.africancraftsmarket.com/Bone-ear-ring_details.htm	N/A	African Crafts Market	Richard Stead African Crafts Market PO Box 10123 Meerens ee 3901 KwaZulu Natal South Africa.	South Africa	30.11. 2016
Bone Round	N/A	22	22	http://www.knifemaking.com/category-s/1033.htm	www.girafebone.com	Jantz Supply	Jantz Supply 309 W Main Davis, OK 73030	USA	14.12. 2016
Boots	N/A	379.99	379.99	https://www.cavenders.com/western/cowboy-boots/mens-boots-shoes/western-square-toe-boots/AB5325L?cm_mmc=Goo%257CMen%2527s+Boots+%2526+Shoes%257CWestern+Square+Toe+Boots-CSE-_-Anderson+Bean+Men%2527s+Rust+Safari+Giraffe+With+Emerald+Top+Square+T&gclid=CjwKEAiAjvrBBRDxm_nRusW3q1QSJAzRI1tRHLUleM0fq7X7Q63Yrz5aTCmh2OXVvzEOGT rDtSVRoCBe_w_wcB	Anderson Bean Boot Company	Cavender's	1750 E Expy 83, Mercedess, TX 78570	USA	30.11. 2016

Boots	1	325	325	http://www.ebay.com/itm/Natural-Justin-TREE-BARK-GIRAFFE-SKIN-Exotic-Boots-Men-Size-10-1-2D-MADE-IN-USA-/262576641743?hash=item3d22c996cf:g:phQAAOSwaB5Xr4Ql	Pair of Aces	Ebay	N/A	USA	19.12.2016
Boots	1	299	299	http://www.ebay.com/sch/pair.of.aces/m.html?_nkw=&_armrs=1&_ipg=&_from=	Pair of Aces	Ebay	N/A	USA	19.12.2016
Boots	1	299	299	http://www.ebay.com/sch/pair.of.aces/m.html?_nkw=&_armrs=1&_ipg=&_from=	Pair of Aces	Ebay	N/A	USA	19.12.2016
Boots	1	235	235	http://www.ebay.com/sch/pair.of.aces/m.html?_nkw=&_armrs=1&_ipg=&_from=	Pair of Aces	Ebay	N/A	USA	19.12.2016
Bust	N/A	7635.8	7635.8	https://www.1stdibs.com/furniture/more-furniture-collectibles/taxidermy/rare-african-taxidermy-massive-tall-part-giraffe/id-f_3881812/?utm_content=control&gclid=CjwKEAiAjvrBBRDxm_nRusW3q1QSJAazRI1thSN_wmzwbUeuMnPTIDU63ut2kH24hSOgtJLTxGmwYxoCqrnw_wcB	N/A	1stdibs.com	51 Astor Place 3rd Floor New York, NY 10003`	USA	30.11.2016

Carved Bone	1	N/A	N/A	http://www.asianloft.com/images/PDF_catalogs/US-2016-11.pdf	N/A	Asian Loft	Market Square 305 W. High Avenue – Suite 190 HIGH POINT, NC 27260	USA	19.12.2016
Cutlery Set	1	N/A	N/A	http://www.mackrillknives.com/other-cutlery-1.shtml	Mackrill Knives	Mackrill Knives		South Africa	15.12.2016
Hair Bracelet	N/A	20	20	http://www.africancraftsmarket.com/Giraffe-hair-bracelets_details.htm	N/A	African Crafts Market	Richard Stead African Crafts Market PO Box 10123 Meerens ee 3901 KwaZulu Natal South Africa.	South Africa	30.11.2016
Hair Bracelet	10	N/A	N/A	http://www.caspers-taxidermy.com/curios-0#	Caspers Taxidermy	Caspers Taxidermy	Grootfontein	Namibia	19.12.2016
Handgun Case	45	55	2475	http://africangame.com/store/#!/Giraffe-&-Buffalo-Hide-Handgun-Case/p/73750303	N/A	African Game Industries	1000 Kennedy Ln #112, Saginaw, TX 76131	USA	19.12.2016
Handgun Case	44	65	2860	http://africangame.com/store/#!/Giraffe-Hide-Handgun-Case/p/73750301	N/A	African Game Industries	1000 Kennedy Ln #112, Saginaw, TX 76131	USA	19.12.2016

Handgun Case	44	55	2420	http://africangame.com/store/#!/Giraffe-Hide-Handgun-Case/p/73750301	N/A	African Game Industries	1000 Kennedy Ln #112, Saginaw, TX 76131	USA	19.12. 2016
Handgun Case	44	45	1980	http://africangame.com/store/#!/Giraffe-Hide-Handgun-Case/p/73750301	N/A	African Game Industries	1000 Kennedy Ln #112, Saginaw, TX 76131	USA	19.12. 2016
Handgun Case	44	40	1760	http://africangame.com/store/#!/Giraffe-Hide-Handgun-Case/p/73750301	N/A	African Game Industries	1000 Kennedy Ln #112, Saginaw, TX 76131	USA	19.12. 2016
Handgun Case	44	35	1540	http://africangame.com/store/#!/Giraffe-Hide-Handgun-Case/p/73750301	N/A	African Game Industries	1000 Kennedy Ln #112, Saginaw, TX 76131	USA	19.12. 2016
Hide	N/A	N/A	N/A	http://www.kellylarsonsales.com/products/leather/giraffe.htm	Kelly Larson Sales	Kelly Larson Sales	1812 Reliance Parkway Suite G. Bedford, TX 76021	USA	19.12. 2016
Hide	N/A	N/A	N/A	http://www.africanwood.ru/foto_shkur.htm	N/A	ArtWood of Africa	N/A	Russia	20.12. 2016
Hide	N/A	1250	1250	http://www.safariworkstaxidermy.com/Giraffe_Skin_p/sw3177.htm	N/A	SafariWorks Taxidermy Sale	Safariworks LLC 1994 Denton Ave. Morganton NC 28655	USA	30.11. 2016

Hide	N/A	1950	1950	http://www.africancraftsmarket.com/Giraffe-skin.htm	KZN Wildlife	African Crafts Market	Richard Stead African Crafts Market PO Box 10123 Meerens ee 3901 KwaZulu Natal South Africa.	South Africa	30.11. 2016
Hide	N/A	290	290	http://www.allexoticleather.com/product-p/fs101.htm	N/A	Genuine Exotic Skins and Hides	N/A	USA	30.11. 2016
Hide	N/A	260	260	http://www.allexoticleather.com/product-p/fs104.htm	N/A	Genuine Exotic Skins and Hides	N/A	USA	30.11. 2016
Hide	N/A	200	200	http://www.allexoticleather.com/product-p/fs105.htm	N/A	Genuine Exotic Skins and Hides	N/A	USA	30.11. 2016
Hide	N/A	180	180	http://www.allexoticleather.com/product-p/fs10.htm	N/A	Genuine Exotic Skins and Hides	N/A	USA	30.11. 2016
Hide	1	N/A	N/A	http://spb.regmarkets.ru/shkury-naturalnye-53993/210258-shkura-zhirafax-naturalnaya/	KwaZulu Natal Parks Board	Regmarkets	N/A	Russia	20.12. 2016

Hide	1	N/A	N/A	http://shkurykovry.com.ua/p118980607-shkura-nastoyaschego-afrikanskogo.html	N/A	Shkury Kovry	Днепрул . Нижнед непровс кая 17, ТРЦ «Карава н Мебель»	Ukraine	20.12. 2016
Hide	1	5269	5269	http://loft-concept.ru/catalog/hide-and-rug/naturalnaya-shkura-zhirafa/	N/A	Loft Concept	N/A	Russia	20.12. 2016
Knife	24	290	6960	https://www.knivesshipfree.com/arno-bernard-knives/	Arno Bernard	Knives Ship Free		South Africa	15.12. 2016
Knife	20	N/A	N/A	http://www.mackrillknives.com/index.shtml	Mackrill Knives	Mackrill Knives		South Africa	15.12. 2016
Knife	13	330	4290	https://www.knivesshipfree.com/arno-bernard-knives/	Arno Bernard	Knives Ship Free		South Africa	15.12. 2016
Knife	12	221.42	2657	http://www.sabatier-shop.com/pocket-knives_196_cognet---douk-douk_le-thiers-custom_le-thiers-stabilized-giraffe-bone__20123.html	Cognet	Sabatier Shop	Bellevue, 63300 Thiers	France	16.12. 2016
Knife	8	553	4424	http://rezat.ru/ref/rukmaterial/kost_zhirafa/	Arno Bernard Knives	Rezat.ru	N/A	Russia	21.12. 2016

Knife	6	74.95	450	https://www.amazon.com/Customer-Damascus-Hunting-Giraffe-Handle/dp/B010TR4Z2M?SubscriptionId=AKIAJO7E5OLQ67NVPFZA&ascsubtag=817452680-26-123607149.1481923733&camp=2025&creative=165953&creativeASIN=B010TR4Z2M&linkCode=xm2&tag=shopperz_origin2-20	Top Swords	Amazon	785 Seaboard Dr #107, Dallas, GA 30132	USA	19.12.2016
Knife	5	758	3790	http://rezat.ru/referukmaterial/kost_zhirafa/	Arno Bernard Knives	Rezat.ru	N/A	Russia	21.12.2016
Knife	5	643	3215	http://rezat.ru/referukmaterial/kost_zhirafa/	Arno Bernard Knives	Rezat.ru	N/A	Russia	21.12.2016
Knife	5	442	2210	http://rezat.ru/referukmaterial/kost_zhirafa/	Arno Bernard Knives	Rezat.ru	N/A	Russia	21.12.2016
Knife	3	74.95	225	https://www.amazon.com/Customer-Damascus-Hunting-Giraffe-Handle/dp/B010TQZVQC?SubscriptionId=AKIAJO7E5OLQ67NVPFZA&ascsubtag=465285100-26-123607149.1481923733&camp=2025&creative=165953&creativeASIN=B010TQZVQC&linkCode=xm2&tag=shopperz_origin2-20	Top Swords	Amazon	785 Seaboard Dr #107, Dallas, GA 30132	USA	19.12.2016

Knife	3	74.95	225	https://www.amazon.com/Custom-Damascus-Deluxe-Hunting-Giraffe/dp/B010TR9LE4?SubscriptionId=AKIAJ07E5OLQ67NVPFZA&ascsubtag=197775336-26-123607149.1481923733&camp=2025&creative=165953&creativeASIN=B010TR9LE4&linkCode=xm2&tag=shopperz_origin2-20	Top Swords	Amazon	785 Seaboard Dr #107, Dallas, GA 30132	USA	19.12. 2016
Knife	2	1428	2856	http://rezat.ru/ref/rukmaterial/kost_zhirafa/	Arno Bernard Knives	Rezat.ru	N/A	Russia	21.12. 2016
Knife	2	1428	2856	http://rezat.ru/ref/rukmaterial/kost_zhirafa/	Arno Bernard Knives	Rezat.ru	N/A	Russia	21.12. 2016
Knife	2	484	968	http://rezat.ru/ref/rukmaterial/kost_zhirafa/	Arno Bernard Knives	Rezat.ru	N/A	Russia	21.12. 2016
Knife	2	400	800	https://www.kniveshipfree.com/arno-bernard-knives/	Arno Bernard	Knives Ship Free		South Africa	15.12. 2016
Knife	2	257	514	http://rezat.ru/ref/rukmaterial/kost_zhirafa/	Arno Bernard Knives	Rezat.ru	N/A	Russia	21.12. 2016

Knife	2	135	270	https://www.amazon.com/Arno-Bernard-Knives-Squirrel-Giraffe/dp/B01BXSCSB6?SubscriptionId=AKIAJO7E5OLQ67NVPFZA&ascsubtag=514265912-26-123607149.1481923733&camp=2025&creative=165953&creativeASIN=B01BXSCSB6&linkCode=xm2&tag=shopperz_origin2-20	Dull Knife Terminator	Amazon	128 E Neshannock Ave New Wilmington, PA 16142	USA	19.12. 2016
Knife	2	74.95	150	https://www.amazon.com/Damascus-Folding-Guthook-Giraffe-Engraved/dp/B01MXTUM1L?SubscriptionId=AKIAJO7E5OLQ67NVPFZA&ascsubtag=935417886-26-123607149.1481923733&camp=2025&creative=165953&creativeASIN=B01MXTUM1L&linkCode=xm2&tag=shopperz_origin2-20	Top Swords	Amazon	785 Seaboard Dr #107, Dallas, GA 30132	USA	19.12. 2016
Knife	1	2,300	2,300	http://bladegallery.com/shopexd.asp?id=95211	Kevin Harvey, M.S.	Blade Gallery	107 Central Way Kirkland, WA 98033	USA	15.12. 2016
Knife	1	1109	1109	http://rezat.ru/rez/rukmaterial/kost_zhirafa/	Arno Bernard Knives	Rezat.ru	N/A	Russia	21.12. 2016

Knife	1	1109	1109	http://rezat.ru/re/rukmaterial/kost_zhirafa/	Arno Bernard Knives	Rezat.ru	N/A	Russia	21.12.2016
Knife	1	852	852	http://rezat.ru/re/rukmaterial/kost_zhirafa/	Arno Bernard Knives	Rezat.ru	N/A	Russia	21.12.2016
Knife	1	643	643	http://rezat.ru/re/rukmaterial/kost_zhirafa/	Arno Bernard Knives	Rezat.ru	N/A	Russia	21.12.2016
Knife	1	565	565	http://rezat.ru/re/rukmaterial/kost_zhirafa/	Arno Bernard Knives	Rezat.ru	N/A	Russia	21.12.2016
Knife	1	528	528	http://www.sabatier-shop.com/3417-1515-pvd-ceramic-treatment---manu-laplace-1515-giraffe-bone.html	Manu Laplace	Sabatier Shop	Thiers	France	19.12.2016
Knife	1	350	350	https://www.amazon.com/Arno-Bernard-Knives-Giraffe-Handle/dp/B00T6HL4XA?SubscriptionId=AKIAJO7E5OLQ67NVPFZA&ascsubtag=476040865-26-123607149.1481923733&camp=2025&creative=165953&creativeASIN=B00T6HL4XA&linkCode=xm2&tag=shopperz_origin2-20	Dull Knife Terminator	Amazon	128 E Neshannock Ave New Wilmington, PA 16142	USA	19.12.2016

Knife	1	250	250	https://www.amazon.com/Arno-Bernard-Giraffe-Handles-Scavenger/dp/B01MCVFOHC?SubscriptionId=AKIAJO7E5OLQ67NVPFZA&ascsubtag=638007186-26-123607149.1481923733&camp=2025&creative=165953&creativeASIN=B01MCVFOHC&linkCode=sm2&tag=shopperz_origin2-20	Dull Knife Terminator	Amazon	128 E Neshannock Ave New Wilmington, PA 16142	USA	19.12. 2016
Knife	1	250	250	https://www.amazon.com/Arno-Bernard-Vulture-Giraffe-Handles/dp/B00IDTHDZU?SubscriptionId=AKIAJO7E5OLQ67NVPFZA&ascsubtag=538721399-26-123607149.1481923733&camp=2025&creative=165953&creativeASIN=B00IDTHDZU&linkCode=sm2&tag=shopperz_origin2-20	Dull Knife Terminator	Amazon	128 E Neshannock Ave New Wilmington, PA 16142	USA	19.12. 2016
Knife	1	249	249	https://www.everafterguide.com/arno-bernard-knives-wild-dog-knife-giraffe-bone-handles-bohler-n690-blade-4402-5ba0443b190d343e.html	Arno Bernard	Ever After Guide		South Africa	15.12. 2016

Knife	1	150	150	http://www.texasknife.com/vcom/advanced_search_result.php?search_in_description=1&keywords=giraffe&x=13&y=12	Texas Knifemaker's Supply	Texas Knifemaker's Supply	Texas Knifemaker's Supply 10649 Haddington # 180 Houston, Texas 77043	USA	15.12.2016
Knife	1	150	150	https://www.kniveshipfree.com/arno-bernard-knives/	Arno Bernard	Knives Ship Free		South Africa	15.12.2016
Knife	1	135	135	https://www.amazon.com/Arno-Bernard-Porcupine-Giraffe-Handles/dp/B01BXT5HTA?SubscriptionId=AKIAJO7E5OLQ67NVPFZA&ascsubtag=310199281-26-123607149.1481923733&camp=2025&creative=165953&creativeASIN=B01BXT5HTA&linkCode=xm2&tag=shopperz_origin2-20	Dull Knife Terminator	Amazon	128 E Neshannock Ave New Wilmington, PA 16142	USA	19.12.2016
Knife Case	N/A	25	N/A	http://africangame.com/store/#!/Giraffe-Hide-Knife-Case/p/73750305	N/A	African Game Industries	1000 Kennedy Ln #112, Saginaw, TX 76131	USA	19.12.2016
Knife Case	N/A	50	N/A	http://africangame.com/store/#!/Giraffe-Hide-Knife-Case/p/73750305	N/A	African Game Industries	1000 Kennedy Ln #112, Saginaw, TX 76131	USA	19.12.2016

Knife Case	N/A	60	N/A	http://africangame.com/store/#!/Giraffe-Hide-Knife-Case/p/73750305	N/A	African Game Industries	1000 Kennedy Ln #112, Saginaw, TX 76131	USA	19.12. 2016
Knife Case	N/A	70	N/A	http://africangame.com/store/#!/Giraffe-Hide-Knife-Case/p/73750305	N/A	African Game Industries	1000 Kennedy Ln #112, Saginaw, TX 76131	USA	19.12. 2016
Lamp	1	N/A	N/A	http://www.caspers-taxidermy.com/curios-0#	Caspers Taxidermy	Caspers Taxidermy	Grootfontein	Namibia	19.12. 2016
Leg bone	10	59.99	599.9	http://www.ebay.com/sch/m.html?_odkw=&_ssn=worldwidewildlifeproducts&_armrs=1&_osacat=0&_from=R40&_trksid=p2046732.m570.11311.R1.TR12.TRC2.A0.H0.Xgiraffe.TRS0&_nkw=giraffe&_sacat=0	Worldwide Wildlife Products	Ebay	Saint Augustine, Florida, United States	USA	19.12. 2016
Leg Bone	7	90	630	http://www.atlanticcoralenterprise.com/ProductCart/pc/viewCategories.asp?idCategory=697	N/A	Atlantic Coral Enterprise, Inc.	Atlantic Coral Enterprise, Inc. 5000 Crescent Technical Court St. Augustine, FL 32086	USA	16.12. 2016

Leg Bone	5	50	250	http://www.atlanticcoralenterprise.com/ProductCart/pc/viewCategories.asp?idCategory=697	N/A	Atlantic Coral Enterprise, Inc.	Atlantic Coral Enterprise, Inc. 5000 Crescent Technical Court St. Augustine, FL 32086	USA	16.12.2016
Leg Bone	5	40	200	http://www.atlanticcoralenterprise.com/ProductCart/pc/viewCategories.asp?idCategory=697	N/A	Atlantic Coral Enterprise, Inc.	Atlantic Coral Enterprise, Inc. 5000 Crescent Technical Court St. Augustine, FL 32086	USA	16.12.2016
Leg Bone	5	38	190	http://www.atlanticcoralenterprise.com/ProductCart/pc/viewCategories.asp?idCategory=697	N/A	Atlantic Coral Enterprise, Inc.	Atlantic Coral Enterprise, Inc. 5000 Crescent Technical Court St. Augustine, FL 32086	USA	16.12.2016
Leg Bone	5	30	150	http://www.atlanticcoralenterprise.com/ProductCart/pc/viewCategories.asp?idCategory=697	N/A	Atlantic Coral Enterprise, Inc.	Atlantic Coral Enterprise, Inc. 5000 Crescent Technical Court St. Augustine, FL 32086	USA	16.12.2016

Leg Bone	4	100	400	http://www.atlanticcoralenterprise.com/ProductCart/pc/viewCategories.asp?idCategory=697	N/A	Atlantic Coral Enterprise, Inc.	Atlantic Coral Enterprise, Inc. 5000 Crescent Technical Court St. Augustine, FL 32086	USA	16.12.2016
Leg Bone	4	39.99	159.96	http://www.ebay.com/sch/m.html?_odkw=&_ssn=worldwidewildlifeproducts&_armrs=1&_osacat=0&_from=R40&_trksid=p2046732.m570.11311.R1.TR12.TRC2.A0.H0.Xgiraffe.TRS0&_nkw=giraffe&_sacat=0	Worldwide Wildlife Products	Ebay	Saint Augustine, Florida, United States	USA	19.12.2016
Leg Bone	3	49.99	149.97	http://www.ebay.com/itm/12-1-2-inch-South-African-Giraffe-leg-bone-piece-for-carving-17917-141894752507?hash=item21099618fb:g:XBQAAOSwvUIWsmYk	Worldwide Wildlife Products	Ebay	Saint Augustine, Florida, United States	USA	19.12.2016
Leg Bone	3	29.99	89.97	http://www.ebay.com/sch/m.html?_odkw=&_ssn=worldwidewildlifeproducts&_armrs=1&_osacat=0&_from=R40&_trksid=p2046732.m570.11311.R1.TR12.TRC2.A0.H0.Xgiraffe.TRS0&_nkw=giraffe&_sacat=0	Worldwide Wildlife Products	Ebay	Saint Augustine, Florida, United States	USA	19.12.2016

Leg Bone	2	210	420	http://www.naturalexotics.com/store/c/1051-Leg-Bones.aspx?Attributes=256	N/A	Natural Exotics			19.12.2016
Leg Bone	2	100	200	http://www.atlanticcoralenterprise.com/ProductCart/pc/viewCategories.asp?idCategory=697	N/A	Atlantic Coral Enterprise, Inc.	Atlantic Coral Enterprise, Inc. 5000 Crescent Technical Court St. Augustine, FL 32086	USA	16.12.2016
Leg Bone	1	110	110	http://www.atlanticcoralenterprise.com/ProductCart/pc/viewCategories.asp?idCategory=697	N/A	Atlantic Coral Enterprise, Inc.	Atlantic Coral Enterprise, Inc. 5000 Crescent Technical Court St. Augustine, FL 32086	USA	16.12.2016
Leg Bone	1	110	110	http://www.atlanticcoralenterprise.com/ProductCart/pc/viewCategories.asp?idCategory=697	N/A	Atlantic Coral Enterprise, Inc.	Atlantic Coral Enterprise, Inc. 5000 Crescent Technical Court St. Augustine, FL 32086	USA	16.12.2016

Leg Bone	1	90	90	http://www.atlanticcoralenterprise.com/ProductCart/pc/viewCategories.asp?idCategory=697	N/A	Atlantic Coral Enterprise, Inc.	Atlantic Coral Enterprise, Inc. 5000 Crescent Technical Court St. Augustine, FL 32086	USA	16.12.2016
Leg Bone	1	90	90	http://www.atlanticcoralenterprise.com/ProductCart/pc/viewCategories.asp?idCategory=697	N/A	Atlantic Coral Enterprise, Inc.	Atlantic Coral Enterprise, Inc. 5000 Crescent Technical Court St. Augustine, FL 32086	USA	16.12.2016
Leg Bone	1	90	90	http://www.atlanticcoralenterprise.com/ProductCart/pc/viewCategories.asp?idCategory=697	N/A	Atlantic Coral Enterprise, Inc.	Atlantic Coral Enterprise, Inc. 5000 Crescent Technical Court St. Augustine, FL 32086	USA	16.12.2016
Leg Bone	1	85	85	http://www.atlanticcoralenterprise.com/ProductCart/pc/viewCategories.asp?idCategory=697	N/A	Atlantic Coral Enterprise, Inc.	Atlantic Coral Enterprise, Inc. 5000 Crescent Technical Court St. Augustine, FL 32086	USA	16.12.2016

Leg Bone	1	80	80	http://www.atlanticcoralenterprise.com/ProductCart/pc/viewCategories.asp?idCategory=697	N/A	Atlantic Coral Enterprise, Inc.	Atlantic Coral Enterprise, Inc. 5000 Crescent Technical Court St. Augustine, FL 32086	USA	16.12.2016
Leg Bone	1	79.99	79.99	http://www.ebay.com/sch/m.html?_odkw=&_ssn=worldwidewildlifeproducts&_armrs=1&_osacat=0&_from=R40&_trksid=p2046732.m570.l1311.R1.TR12.TRC2.A0.H0.Xgiraffe.TRS0&_nkw=giraffe&_sacat=0	Worldwide Wildlife Products	Ebay	Saint Augustine, Florida, United States	USA	19.12.2016
Leg Bone	1	70	70	http://www.atlanticcoralenterprise.com/ProductCart/pc/viewCategories.asp?idCategory=697	N/A	Atlantic Coral Enterprise, Inc.	Atlantic Coral Enterprise, Inc. 5000 Crescent Technical Court St. Augustine, FL 32086	USA	16.12.2016
Leg Mount	6	79.99	479.94	http://www.ebay.com/sch/m.html?_odkw=&_ssn=worldwidewildlifeproducts&_armrs=1&_osacat=0&_from=R40&_trksid=p2046732.m570.l1311.R1.TR12.TRC2.A0.H0.Xgiraffe.TRS0&_nkw=giraffe&_sacat=0	Worldwide Wildlife Products	Ebay	Saint Augustine, Florida, United States	USA	19.12.2016

Neck Bones	1	300	300	http://www.atlanticcoralenterprise.com/ProductCart/pc/viewCategories.asp?idCategory=697	N/A	Atlantic Coral Enterprise, Inc.	Atlantic Coral Enterprise, Inc. 5000 Crescent Technical Court St. Augustine, FL 32086	USA	16.12.2016
Neck Vertebra	1	60	60	http://www.ebay.com/itm/like/201577293965?vectorid=229466&lgeo=1&item=201577293965&rmvSB=true	Worldwide Wildlife Products	Ebay	Saint Augustine, Florida, United States	USA	19.12.2016
Neck Vertebra	1	60	60	http://www.ebay.com/itm/like/201577117265?vectorid=229466&lgeo=1&item=201577117265&rmvSB=true	Worldwide Wildlife Products	Ebay	Saint Augustine, Florida, United States	USA	19.12.2016
Neck Vertebra	1	60	60	http://www.ebay.com/itm/like/201536951374?vectorid=229466&lgeo=1&item=201536951374&rmvSB=true	Worldwide Wildlife Products	Ebay	Saint Augustine, Florida, United States	USA	19.12.2016
Neck Vertebra	1	49.99	49.99	http://www.ebay.com/itm/9-inch-Single-South-African-Giraffe-Neck-Vertebra-real-bone-taxidermy-GUN5638-/201754505305?hash=item2ef9817059:g:dAMA AOSwB09YRGvW	Worldwide Wildlife Products	Ebay	Saint Augustine, Florida, United States	USA	19.12.2016

Neck Vertebra	8	59.99	479.92	http://www.ebay.com/sch/m.html?_odkw=&_ssn=worldwidewildlifeproducts&_armrs=1&_osacat=0&_from=R40&_trksid=p2046732.m570.11311.R1.TR12.TRC2.A0.H0.Xgiraffe.TRS0&_nkw=giraffe&_sacat=0	Worldwide Wildlife Products	Ebay	Saint Augustine, Florida, United States	USA	19.12.2016
Neck Vertebra	1	49.99	49.99	http://www.ebay.com/itm/11-inch-Single-South-African-Giraffe-Neck-Vertebra-real-bone-taxidermy-GUN5639-/371818620997?hash=item56921de845:g:A3AAAOsw44BYRGs0	Worldwide Wildlife Products	Ebay	Saint Augustine, Florida, United States	USA	19.12.2016
Neck Vertebrae	2	299.99	599.98	http://www.ebay.com/sch/m.html?_odkw=&_ssn=worldwidewildlifeproducts&_armrs=1&_osacat=0&_from=R40&_trksid=p2046732.m570.11311.R1.TR12.TRC2.A0.H0.Xgiraffe.TRS0&_nkw=giraffe&_sacat=0	Worldwide Wildlife Products	Ebay	Saint Augustine, Florida, United States	USA	19.12.2016
Necklace	N/A	29	29	http://www.africancraftsmarket.com/Giraffe-hair-necklace.htm	N/A	African Crafts Market	Richard Stead African Crafts Market PO Box 10123 Meerens ee 3901 KwaZulu Natal South Africa.	South Africa	30.11.2016

Pen Blanks	15	17.5	262.5	http://www.knifemaking.com/category-s/1268.htm	N/A	Jantz Supply	Jantz Supply 309 W Main Davis, OK 73030	USA	14.12. 2016
Pillow	50	215	10750	http://africangame.com/store/#!/Giraffe-Hide-Skin-Pillow/p/73750296	N/A	African Game Industries	1000 Kennedy Ln #112, Saginaw, TX 76131	USA	19.12. 2016
Pillow	50	185	9250	http://africangame.com/store/#!/Giraffe-Hide-Skin-Pillow/p/73750296	N/A	African Game Industries	1000 Kennedy Ln #112, Saginaw, TX 76131	USA	19.12. 2016
Pillow	50	180	9000	http://africangame.com/store/#!/Giraffe-Hide-Skin-Pillow-20-x-10/p/73750298	N/A	African Game Industries	1000 Kennedy Ln #112, Saginaw, TX 76131	USA	19.12. 2016
Pillow	50	180	9000	http://africangame.com/store/#!/Giraffe-Hide-&-Leather-Pillow-20-x-10/p/73750299	N/A	African Game Industries	1000 Kennedy Ln #112, Saginaw, TX 76131	USA	19.12. 2016
Pistol Grips	2	215	430	https://www.etsy.com/shop/MDGrips?ref=l2-shopheader-name	MDGrips	Etsy	Springfield, Tennessee	USA	16.12. 2016

Pistol Grips	1	275	275	https://www.etsy.com/listing/490770145/ruger-bisley-giraffe-bone-pistol-grips?utm_source=google&utm_medium=cpc&utm_campaign=shopping_us_art_and_collectibles-other&utm_custom1=f1b0544f-f80f-4587-86da-a656f23e3f69&gclid=CjwKEAiAvs7CBRC24rao6bGCoiASJABaCt5DtCF8stb6yaOP9zX_s84V8lZJ10i6laRZidXTWbmz-BoCVJ_w_wcB	MDGrips	Etsy	Springfield, Tennessee	USA	16.12.2016
Pistol Grips	1	250	250	https://www.etsy.com/listing/490768051/ruger-new-vaquero-ruger-montado-giraffe?utm_source=google&utm_medium=cpc&utm_campaign=shopping_us_art_and_collectibles-other&utm_custom1=f1b0544f-f80f-4587-86da-a656f23e3f69&gclid=CjwKEAiAvs7CBRC24rao6bGCoiASJABaCt5DE9brXgrZRFpkTNGn CZ7DnDg5GpSfErtlE_UBccDTfxoCd3jw_wcB	MDGrips	Etsy	Springfield, Tennessee	USA	16.12.2016

Pistol Grips	1	200	200	https://www.etsy.com/listing/468385302/1911-custom-handmade-giraffe-bone-pistol?utm_source=google&utm_medium=cpc&utm_campaign=shopping_us_art_and_collectibles-other&utm_custom1=f1b0544f-f80f-4587-86da-a656f23e3f69&gclid=CjwKEAiAvs7CBRC24rao6bGCoiASJABaCt5DOK23NT1WkmG3zyQb0sa9S44KH5DObri8RYCi3_FDIBoC1bjw_wcB	MDGrips	Etsy	Springfield, Tennessee	USA	16.12.2016
Pistol Grips	1	125	125	https://www.amazon.com/1911-Pistol-Grips-Full-Giraffe/dp/B00IZL8SQ4?SubscriptionId=AKIAJ07E5OLQ67NVPFZA&ascsubtag=178336231-26-123607149.1481923733&camp=2025&creative=165953&creativeASIN=B00IZL8SQ4&linkCode=xm2&tag=shopperz_origin2-20	Grips By Larry	Amazon	P.O. Box 355 Beatty, Nevada 89003	USA	19.12.2016
Pistol Grips	1	65	65	http://www.ebay.com/itm/Compact-1911-Giraffe-Bone-grips-/112241465935?hash=item1a221cda4f:g:V2oAAOSwiONYMbUr	John C.	Ebay	N/A	USA	

Rug	1	1,650	1,650	http://www.ebay.com/itm/TAXIDERMY-BEAUTIFUL-GIRAFFE-SKIN-RUG-EXCELLENT-HIDE-AFRICA-SAFARI-HUNTING-DECOR-/371368236010?hash=item56774593ea:g:kKgAAOSwLVZVkroz	Mills Hide and Fur	Ebay	3143 Deerwood Ln Signal Mountain, Tennessee	USA	19.12. 2016
Rug	1	1,450	1,450	http://www.ebay.com/itm/TAXIDERMY-TANNED-GIRAFFE-SKIN-RUG-EXCELLENT-FUR-HIDE-AFRICA-SAFARI-HUNTING-DECOR-/371325258141?hash=item5674b5c99d:g:0bsAAOSwmrIU9a0	Mills Hide and Fur	Ebay	3143 Deerwood Ln Signal Mountain, Tennessee	USA	19.12. 2016
Scales	64	46.5	2976	http://www.knifemaking.com/categories/1165.htm	N/A	Jantz Supply	Jantz Supply 309 W Main Davis, OK 73030	USA	14.12. 2016
Scales	52	61.25	3185	http://www.knifemaking.com/categories/1188.htm	www.girafebone.com	Jantz Supply	Jantz Supply 309 W Main Davis, OK 73030	USA	14.12. 2016

Scales	45	35	1575	http://www.knifemaking.com/category-s/1185.htm	www.girafebone.com	Jantz Supply	Jantz Supply 309 W Main Davis, OK 73030	USA	14.12.2016
Scales	41	43.75	1793.75	http://www.knifemaking.com/category-s/1186.htm	www.girafebone.com	Jantz Supply	Jantz Supply 309 W Main Davis, OK 73030	USA	14.12.2016
Scales	39	52.5	2047.5	http://www.knifemaking.com/category-s/1187.htm	www.girafebone.com	Jantz Supply	Jantz Supply 309 W Main Davis, OK 73030	USA	14.12.2016
Scales	22	26.25	577.5	http://www.knifemaking.com/category-s/1184.htm	www.girafebone.com	Jantz Supply	Jantz Supply 309 W Main Davis, OK 73030	USA	14.12.2016
Scales	21	17.75	372.75	http://www.knifemaking.com/category-s/1183.htm	www.girafebone.com	Jantz Supply	Jantz Supply 309 W Main Davis, OK 73030	USA	14.12.2016
Scales	16	N/A	N/A	http://www.camelboneknifehandles.com/Giraffe-Bone-Look-Scales.html#thumb	Camel Bone Knife Handles	Camel Bone Knife Handles		India	16.12.2016
Scales	7	64.95	454.65	http://www.knifekits.com/vcom/index.php?cPath=40_490&osCsid=3lulq36caikr43hpvdsg77cpe3	Knife Kits	Knife Kits	Peachtree City, Georgia.	USA	19.12.2016

Scales	5	54.95	274.75	http://www.knifekits.com/vcom/index.php?cPath=40_490&osCsid=3lulq36caikr43hpdsg77cpe3	Knife Kits	Knife Kits	Peachtree City, Georgia.	USA	19.12.2016
Scales	4	60	240	http://www.coastivory.com/mammoth1.htm	N/A	Coast Ivory		USA	16.12.2016
Scales	4	44.95	179.8	http://www.knifekits.com/vcom/index.php?cPath=40_490&osCsid=3lulq36caikr43hpdsg77cpe3					
Scales	4	40	160	http://www.coastivory.com/mammoth1.htm	N/A	Coast Ivory		USA	16.12.2016
Scales	4	24.95	100	http://www.knifekits.com/vcom/index.php?cPath=40_490&osCsid=3lulq36caikr43hpdsg77cpe3	Knife Kits	Knife Kits	Peachtree City, Georgia.	USA	19.12.2016
Scales	3	25	75	http://www.coastivory.com/mammoth1.htm	N/A	Coast Ivory		USA	16.12.2016
Scales	2	74.95	150	http://www.knifekits.com/vcom/index.php?cPath=40_490&osCsid=3lulq36caikr43hpdsg77cpe3	Knife Kits	Knife Kits	Peachtree City, Georgia.	USA	19.12.2016
Scales	2	55	110	http://www.coastivory.com/mammoth1.htm	N/A	Coast Ivory		USA	16.12.2016
Scales	2	18	32	http://www.knifehandles.com/smooth-jigged-bone/giraffe-bone		Knife Handles	8285 Georgia Road - Otto, NC 28763	USA	16.12.2016
Scales	2	14.95	30	http://www.knifekits.com/vcom/index.php?cPath=40_490&osCsid=3lulq36caikr43hpdsg77cpe3	Knife Kits	Knife Kits	Peachtree City, Georgia.	USA	19.12.2016

Scales	2	18	18	http://www.knifehandles.com/black-giraffe-bone-2-15-16-x-15-16-x-178-15.html	N/A	Culpepper & Co.	8285 Georgia Road - Otto, NC 28763	USA	19.12. 2016
Scales	1	50	50	http://www.coastivory.com/mammoth1.htm	N/A	Coast Ivory		USA	16.12. 2016
Scales	1	35	35	http://www.coastivory.com/mammoth1.htm	N/A	Coast Ivory		USA	16.12. 2016
Scales	1	30	30	http://www.coastivory.com/mammoth1.htm	N/A	Coast Ivory		USA	16.12. 2016
Scales	1	16	16	http://www.knifehandles.com/smoother-jagged-bone/giraffe-bone		Knife Handles	8285 Georgia Road - Otto, NC 28763	USA	16.12. 2016
Scales	1	16	16	http://www.knifehandles.com/black-giraffe-bone-2-3-4-x-11-16-x-140-10.html	N/A	Culpepper & Co.	8285 Georgia Road - Otto, NC 28763	USA	19.12. 2016
Shoulder Blade	9	49.99	449.91	http://www.ebay.com/itm/23-inch-South-African-Giraffe-Shoulder-Blade-bone-taxidermy-17269-/201493342851?hash=item2ee9f06a83:g:h3IAAOSwUdlWgqkT	Worldwide Wildlife Products	Ebay	Saint Augustine, Florida, United States	USA	19.12. 2016
Shoulder Blade	4	50	200	http://www.atlanticcoralenterprise.com/ProductCategory/pc/viewCategories.asp?idCategory=697	N/A	Atlantic Coral Enterprise, Inc.	Atlantic Coral Enterprise, Inc. 5000 Crescent Technical Court St. Augustine, FL 32086	USA	16.12. 2016

Shoulder Blade	3	40	120	http://www.atlanticcoralenterprise.com/ProductCart/pc/viewCategories.asp?idCategory=697	N/A	Atlantic Coral Enterprise, Inc.	Atlantic Coral Enterprise, Inc. 5000 Crescent Technical Court St. Augustine, FL 32086	USA	16.12.2016
Shoulder Blade	2	42.99	85.98	http://www.ebay.com/sch/m.html?_odkw=&_ssn=worldwidewildlifeproducts&_armrs=1&_osacat=0&_from=R40&_trksid=p2046732.m570.11311.R1.TR12.TRC2.A0.H0.Xgiraffe.TRS0&_nkw=giraffe&_sacat=0	Worldwide Wildlife Products	Ebay	Saint Augustine, Florida, United States	USA	19.12.2016
Skull	N/A	825	825	http://www.knifemaking.com/product-p/nb1801a.htm	N/A	Jantz Supply	Jantz Supply 309 W Main Davis, OK 73030	USA	14.12.2016
Skull	N/A	295	295	http://www.africancraftsmarket.com/Giraffe-skull.htm	KZN Wildlife	African Crafts Market	Richard Stead African Crafts Market PO Box 10123 Meerens ee 3901 KwaZulu Natal South Africa.	South Africa	30.11.2016
Table	2	N/A	N/A	http://www.caspers-taxidermy.com/cursos-0#	Caspers Taxidermy	Caspers Taxidermy	Grootfontein	Namibia	19.12.2016

Thumbs tud	1	23	23	http://www.texasknife.com/vcom/advanced_search_result.php?search_in_description=1&keywords=giraffe&x=13&y=12	Texas Knifemaker's Supply	Texas Knifemaker's Supply	Texas Knifemaker's Supply 10649 Haddington # 180 Houston, Texas 77043	USA	15.12. 2016
Upper leg	13	60	780	http://www.atlanticcoralenterprise.com/ProductCart/pc/viewCategories.asp?idCategory=697	N/A	Atlantic Coral Enterprise, Inc.	Atlantic Coral Enterprise, Inc. 5000 Crescent Technical Court St. Augustine, FL 32086	USA	16.12. 2016
Vetebra e Bone	4	50	200	http://www.atlanticcoralenterprise.com/ProductCart/pc/viewCategories.asp?idCategory=697	N/A	Atlantic Coral Enterprise, Inc.	Atlantic Coral Enterprise, Inc. 5000 Crescent Technical Court St. Augustine, FL 32086	USA	16.12. 2016
Vetebra e Bone	2	50	100	http://www.atlanticcoralenterprise.com/ProductCart/pc/viewCategories.asp?idCategory=697	N/A	Atlantic Coral Enterprise, Inc.	Atlantic Coral Enterprise, Inc. 5000 Crescent Technical Court St. Augustine, FL 32086	USA	16.12. 2016

Source: Link to each website from which information was sourced is included in the table.