[Template:Other uses](/wiki/Template:Other_uses" \o "Template:Other uses) [Template:Pp-semi-indef](/wiki/Template:Pp-semi-indef) [Template:Use dmy dates](/wiki/Template:Use_dmy_dates) [Template:Taxobox](/wiki/Template:Taxobox) The **giraffe** (*Giraffa camelopardalis*) is an African [even-toed ungulate](/wiki/Even-toed_ungulate) [mammal](/wiki/Mammal), the [tallest](/wiki/Largest_mammals#Even-toed_Ungulates_(Artiodactyla)) [living](/wiki/Extant_taxon) terrestrial animal and the largest [ruminant](/wiki/Ruminant). Its [species name](/wiki/Binomial_nomenclature) refers to its [camel](/wiki/Camel)-like shape and its [leopard](/wiki/Leopard)-like colouring. Its chief distinguishing characteristics are its extremely long neck and legs, its horn-like [ossicones](/wiki/Ossicone), and its distinctive coat patterns. It is classified under the [family](/wiki/Family_(biology)) [Giraffidae](/wiki/Giraffidae), along with its closest extant relative, the [okapi](/wiki/Okapi). The nine subspecies are distinguished by their coat patterns.

The giraffe's scattered range extends from [Chad](/wiki/Chad) in the north to [South Africa](/wiki/South_Africa) in the south, and from [Niger](/wiki/Niger) in the west to [Somalia](/wiki/Somalia) in the east. Giraffes usually inhabit [savannahs](/wiki/Savannah), [grasslands](/wiki/Grassland), and open [woodlands](/wiki/Woodland). Their primary food source is [acacia](/wiki/Acacieae) leaves, which they browse at heights most other herbivores cannot reach. Giraffes are preyed on by [lions](/wiki/Lion); their young are also targeted by [leopards](/wiki/Leopard), [spotted hyenas](/wiki/Spotted_hyena), and [African wild dogs](/wiki/African_wild_dog). Giraffe are gregarious and may gather in large aggregations. Males establish social hierarchies through "necking", which are combat bouts where the neck is used as a weapon. [Dominant](/wiki/Dominance_(ethology)) males gain mating access to females, which bear the sole responsibility for raising the young.

The giraffe has intrigued various cultures, both ancient and modern, for its peculiar appearance, and has often been featured in paintings, books, and cartoons. It is classified by the [International Union for Conservation of Nature](/wiki/International_Union_for_Conservation_of_Nature) as [Least Concern](/wiki/Least_Concern), but has been [extirpated](/wiki/Extirpated) from many parts of its former range, and three subspecies are classified as [Endangered](/wiki/Endangered). Nevertheless, giraffes are still found in numerous [national parks](/wiki/National_park) and [game reserves](/wiki/Game_reserve).

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## Etymology[[edit](/index.php?title=(none)&action=edit&section=1)]

The name "giraffe" has its earliest known origins in the [Arabic](/wiki/Arabic_language) word *zarafah* (زرافة),<ref name=OED/> perhaps borrowed from an the animal's [Somali](/wiki/Somali_language) name *geri*.[[1]](#cite_note-1) The Arab name is translated as "fast-walker".<ref name=kingdon/> There were several [Middle English](/wiki/Middle_English) spellings, such as *jarraf*, *ziraph*, and *gerfauntz*.<ref name=OED/> The [Italian](/wiki/Italian_language) form *giraffa* arose in the 1590s.<ref name=OED>[Template:Cite web](/wiki/Template:Cite_web)</ref> The modern English form developed around 1600 from the [French](/wiki/French_language) *girafe*.<ref name=OED/>

The species name *camelopardalis* is from [Latin](/wiki/Latin).[[2]](#cite_note-2) "Camelopard" is an archaic English name for the giraffe deriving from the [Ancient Greek](/wiki/Ancient_Greek) for camel and leopard, animals which the giraffe was thought to resemble.[[3]](#cite_note-3)[[4]](#cite_note-4) *Kameelperd* is also the name for the species in [Afrikaans](/wiki/Afrikaans).<ref name=walker>[Template:Cite book](/wiki/Template:Cite_book)</ref> Other African names for the giraffe include *ekorii* ([Ateso](/wiki/Teso_language)), *kanyiet* ([Elgon](/wiki/Elgon_languages)), *nduida* ([Gikuyu](/wiki/Gikuyu_language)), *tiga* ([Kalenjin](/wiki/Nandi–Markweta_languages) and [Luo](/wiki/Luo_language)), *ndwiya* ([Kamba](/wiki/Kamba_language)), *nudululu* ([Kihehe](/wiki/Hehe_language)), *ntegha* ([Kinyaturu](/wiki/Turu_language)), *ondere* ([Lugbara](/wiki/Lugbara_language)), *etiika* ([Luhya](/wiki/Luhya_language)), *kuri* ([Ma'di](/wiki/Ma'di_language)), *oloodo-kirragata* or *olchangito-oodo* ([Maasai](/wiki/Maasai_language)), *lenywa* ([Meru](/wiki/Meru_language)), *hori* ([Pare](/wiki/Pare_language)), *lment* ([Samburu](/wiki/Samburu_language)) and *twiga* ([Swahili](/wiki/Swahili_language) and others) in the east;<ref name=Kingdon1988/>[Template:Rp](/wiki/Template:Rp) and *tutwa* ([Lozi](/wiki/Lozi_language)), *nthutlwa* ([Shangaan](/wiki/Tsonga_language)), *indlulamitsi* ([Siswati](/wiki/Swazi_language)), *thutlwa* ([Sotho](/wiki/Tswana_language)), *thuda* ([Venda](/wiki/Venda_language)) and *ndlulamithi* ([Zulu](/wiki/Zulu_language)) in the south.<ref name=walker/>

## Taxonomy and evolution[[edit](/index.php?title=(none)&action=edit&section=2)]

[thumb|200px|right|The extinct giraffid](/wiki/File:Giraffidcomparison.jpg) [*Samotherium*](/wiki/Samotherium) (middle) in comparison with the okapi (below) and giraffe. The anatomy of *Samotherium* appears to have shown a transition to a giraffe-like neck. The giraffe belongs to the suborder [Ruminantia](/wiki/Ruminantia). Many ruminants have been described from the mid-[Eocene](/wiki/Eocene) in [Central Asia](/wiki/Central_Asia), [Southeast Asia](/wiki/Southeast_Asia), and [North America](/wiki/North_America). The ecological conditions during this period may have facilitated their rapid dispersal. The giraffe is one of only two living species of the family [Giraffidae](/wiki/Giraffidae), the other being the [okapi](/wiki/Okapi). The family was once much more extensive, with over 10 fossil [genera](/wiki/Genus) described. Their closest known relatives are the extinct deer-like [climacocerids](/wiki/Climacoceratidae). They, together with the family [Antilocapridae](/wiki/Antilocapridae) (whose only extant species is the [pronghorn](/wiki/Pronghorn)), belong to the superfamily [Giraffoidea](/wiki/Giraffoidea). These animals may have evolved from the extinct family [Palaeomerycidae](/wiki/Palaeomerycidae) which might also have been the ancestor of [deer](/wiki/Deer).[[5]](#cite_note-5) The elongation of the neck appears to have started early in the giraffe [lineage](/wiki/Lineage_(evolution)). Comparisons between giraffes and their ancient relatives suggest that vertebrae close to the skull lengthened earlier, followed by the elongation of vertebrae further down.[[6]](#cite_note-6) One early giraffid ancestor was [*Canthumeryx*](/wiki/Canthumeryx) which has been dated variously to have lived 25–20 million years ago (mya), 17–15 mya or 18–14.3 mya and whose deposits have been found in Libya. This animal was medium-sized, slender and antelope-like. [*Giraffokeryx*](/wiki/Giraffokeryx) appeared 15 mya in the [Indian subcontinent](/wiki/Indian_subcontinent) and resembled either an okapi or a small giraffe, and had a more elongated neck and similar [ossicones](/wiki/Ossicones).[[5]](#cite_note-5) *Giraffokeryx* may have shared a clade with more massively built giraffids like [*Sivatherium*](/wiki/Sivatherium) and [*Bramatherium*](/wiki/Bramatherium).[[6]](#cite_note-6) Giraffids like [*Palaeotragus*](/wiki/Palaeotragus), [*Shansitherium*](/wiki/Shansitherium) and [*Samotherium*](/wiki/Samotherium) appeared 14 mya and lived throughout Africa and Eurasia. These animals had bare ossicones and small cranial sinuses and were more elongated with broader skulls.[[5]](#cite_note-5)[[6]](#cite_note-6) *Paleotragus* resembled the okapi and may been its ancestor.[[5]](#cite_note-5) Others find that the okapi linage diverged earlier, before *Giraffokeryx*.[[6]](#cite_note-6) *Samotherium* was a particularly important [transitional fossil](/wiki/Transitional_fossil) in the giraffe linage as its cervical vertebrae was intermediate in length and structure between a modern giraffe and an okapi, and was oriented more vertically than the latter.[[7]](#cite_note-7) [*Bohlinia*](/wiki/Bohlinia), which first appeared in southeastern Europe and lived 9–7 mya was likely a direct ancestor of the giraffe. *Bohlinia* closely resembled modern giraffes, having a long neck and legs and similar ossicones and dentition.[[5]](#cite_note-5)[thumb|250px|left|Fossil of *Giraffa jumae* at](/wiki/File:Giraffa_jumae.JPG) [Natural History Museum, London](/wiki/Natural_History_Museum,_London) *Bohlinia* entered China and northern India in response to climate change. From here, the genus [*Giraffa*](/wiki/Giraffa) evolved and, around 7 mya, entered Africa. Further climate changes caused the extinction of the Asian giraffes, while the African ones survived and radiated into several new species. *G. camelopardalis* arose around 1 mya in eastern Africa during the [Pleistocene](/wiki/Pleistocene).[[5]](#cite_note-5) Some biologists suggest the modern giraffe descended from [*G. jumae*](/wiki/Giraffa_jumae);<ref name=sim1996/> others find [*G. gracilis*](/wiki/Giraffa_gracilis) a more likely candidate.[[5]](#cite_note-5) The former was larger and more heavily built while the latter was smaller and more lightly built. The main driver for the evolution of the giraffes is believed to have been the changes from extensive forests to more open habitats, which began 8 mya.[[5]](#cite_note-5) Some researchers have hypothesised that this new habitat coupled with a different diet, including acacia species, may have exposed giraffe ancestors to toxins that caused higher mutation rates and a higher rate of evolution.[[8]](#cite_note-8) The coat patterns of modern giraffes may also have coincided with these habitat changes. Asian giraffes are hypothesised to have had more okapi-like colourations.[[5]](#cite_note-5) The giraffe was one of the many species first described by [Carl Linnaeus](/wiki/Carl_Linnaeus) in 1758. He gave it the binomial name [*Cervus*](/wiki/Cervus) *camelopardalis*. [Morten Thrane Brünnich](/wiki/Morten_Thrane_Brünnich) classified the genus *Giraffa* in 1772.[[9]](#cite_note-9) In the early 19th century, [Jean-Baptiste Lamarck](/wiki/Jean-Baptiste_Lamarck) believed the giraffe's long neck was an "acquired characteristic", developed as generations of ancestral giraffes strove to reach the leaves of tall trees.[[10]](#cite_note-10) This theory was eventually rejected, and scientists now believe the giraffe's neck arose through Darwinian [natural selection](/wiki/Natural_selection)—that ancestral giraffes with long necks thereby had a competitive advantage that better enabled them to reproduce and pass on their genes.[[10]](#cite_note-10) The giraffe [genome](/wiki/Genome) is around 2.9 billion [base pairs](/wiki/Base_pair) in length compared to the is 3.3 billion base pairs of the okapi. 19.4% of proteins in giraffe and okapi genes are identical. The two species are equally distantly related to cattle, suggesting the giraffe's unique characteristics are not because of a faster rate of evolution. The [divergence](/wiki/Divergent_evolution) time of giraffe and okapi linages date to around 11.5 mya. A small group of [regulatory genes](/wiki/Regulatory_gene) in the giraffe appear to be responsible for the animal's stature and associated circulatory adaptations.<ref name=Genome>[Template:Cite journal](/wiki/Template:Cite_journal)</ref>

### Subspecies[[edit](/index.php?title=(none)&action=edit&section=3)]

Up to nine subspecies of giraffe are recognised (with population estimates [Template:As of](/wiki/Template:As_of)):

{| class="wikitable" |+ Subspecies of Giraffe ! Subspecies !! Description !! Image |- |[**Nubian giraffe**](/wiki/Nubian_giraffe), (*G. c. camelopardalis*)[[11]](#cite_note-11) || The [nominate subspecies](/wiki/Nominate_subspecies), is found in eastern [South Sudan](/wiki/South_Sudan) and south-western [Ethiopia](/wiki/Ethiopia).<ref name=wildstatus/> It has sharply defined chestnut-coloured spots surrounded by mostly white lines, while undersides lack spotting. The median lump is particularly developed in the male.<ref name=Seymour>Seymour, R. (2002) The taxonomic status of the giraffe, *Giraffa camelopardalis* (L. 1758), PH.D Thesis</ref>[Template:Rp](/wiki/Template:Rp) Fewer than 250 are thought to remain in the wild, although this number is uncertain.<ref name=wildstatus>[Template:Cite web](/wiki/Template:Cite_web)</ref> It is rare in captivity, although a group is kept at [Al Ain Zoo](/wiki/Al_Ain_Zoo) in the [United Arab Emirates](/wiki/United_Arab_Emirates).[[12]](#cite_note-12) In 2003, this group numbered 14.[[13]](#cite_note-13) ||[150px](/wiki/File:Al_Ain_Zoo_Giraffe.JPG) |- |[**Reticulated giraffe**](/wiki/Reticulated_giraffe) (*G. c. reticulata*),[[11]](#cite_note-11) also known as **Somali giraffe** || Is native to north-eastern [Kenya](/wiki/Kenya), southern Ethiopia, and [Somalia](/wiki/Somalia).<ref name=wildstatus/> Its distinctive coat pattern consists of sharp-edged, reddish brown polygonal patches divided by a network of thin white lines. Spots may or may not extend below the hocks, and a median lump is present in males.<ref name=Seymour/>[Template:Rp](/wiki/Template:Rp) An estimated maximum of 5,000 remain in the wild,<ref name=wildstatus/> and based on [International Species Information System](/wiki/International_Species_Information_System) records, more than 450 are kept in zoos.<ref name=ISIS>[Template:Cite web](/wiki/Template:Cite_web)</ref>

||[150px](/wiki/File:Two_Giraffes.PNG) |- |[**Angolan giraffe**](/wiki/Angolan_giraffe) (*G. c. angolensis*), also known as **Namibian giraffe** || Is found in northern [Namibia](/wiki/Namibia), south-western [Zambia](/wiki/Zambia), [Botswana](/wiki/Botswana), and western [Zimbabwe](/wiki/Zimbabwe). A 2009 genetic study on this subspecies suggests the northern [Namib Desert](/wiki/Namib_Desert) and [Etosha National Park](/wiki/Etosha_National_Park) populations form a separate subspecies.[[14]](#cite_note-14) This subspecies has large brown blotches with edges that are either somewhat notched or have angular extensions. The spotting pattern extends throughout the legs but not the upper part of the face. The neck and rump patches tend to be fairly small. The subspecies also has a white ear patch.<ref name=Seymour/>[Template:Rp](/wiki/Template:Rp) A maximum of 20,000 animals are estimated to remain in the wild;<ref name=wildstatus/> and about 20 are kept in zoos.<ref name=ISIS/>

||[150px](/wiki/File:Giraffa_camelopardalis_-Zambia-8.jpg) |- |[**Kordofan giraffe**](/wiki/Kordofan_giraffe) (*G. c. antiquorum*) || Has a distribution which includes southern [Chad](/wiki/Chad), the [Central African Republic](/wiki/Central_African_Republic), northern [Cameroon](/wiki/Cameroon), and north-eastern [DR Congo](/wiki/Democratic_Republic_of_the_Congo). Populations in Cameroon were formerly included in *G. c. peralta*, but this was incorrect.<ref name=WestAfricaGiraffe>[Template:Cite journal](/wiki/Template:Cite_journal)</ref> Compared to the Nubian giraffe, this subspecies has smaller and more irregular spotting patterns. Its spots may be found below the hocks and the insides of the legs. A median lump is present in males.<ref name=Seymour/>[Template:Rp](/wiki/Template:Rp) A maximum of 3,000 are believed to remain in the wild.<ref name=wildstatus/> Considerable confusion has existed over the status of this subspecies and *G. c. peralta* in zoos. In 2007, all alleged *G. c. peralta* in [European zoos](/wiki/List_of_zoos#Europe) were shown to be, in fact, *G. c. antiquorum*.<ref name=WestAfricaGiraffe/> With this correction, about 65 are kept in zoos.<ref name=ISIS/> The formerly recognised subspecies *G. c. congoesis* is now considered part of Kordofan subspecies.

||[150px](/wiki/File:Giraffa_camelopardalis_antiquorum_(Vincennes_Zoo)_2.jpg) |- |[**Masai giraffe**](/wiki/Masai_giraffe) (*G. c. tippelskirchi*), also known as [**Kilimanjaro**](/wiki/Kilimanjaro) **giraffe** || Can be found in central and southern Kenya and in [Tanzania](/wiki/Tanzania).<ref name=wildstatus/> It has distinctive, irregular, jagged, star-like blotches which extend to the hooves. A median lump is usually present in males.<ref name=Seymour/>[Template:Rp](/wiki/Template:Rp)<ref name=estes/> A maximum of 40,000 are thought to remain in the wild,<ref name=wildstatus/> and about 100 are kept in zoos.<ref name=ISIS/>

||[150px](/wiki/File:GiraffaCamelopardalisTippelskirchi-Masaai-Mara.JPG) |- |[**Rothschild's giraffe**](/wiki/Rothschild's_giraffe) (*G. c. rothschildi*, after [Walter Rothschild](/wiki/Walter_Rothschild,_2nd_Baron_Rothschild)),[[11]](#cite_note-11) also known as [**Baringo**](/wiki/Lake_Baringo) **giraffe** or [**Ugandan**](/wiki/Uganda) **giraffe** ||Its range includes parts of Uganda and Kenya.<ref name=iucn/> Its presence in South Sudan is uncertain.<ref name=IUCNrothschildi>[Template:IUCN2012.2](/wiki/Template:IUCN2012.2)</ref> This giraffe has large dark patches that usually have complete margins, but may also have sharp edges. The dark spots may also have paler radiating lines or streaks within them. Spotting does not often reach below the hocks and almost never to the hooves. This subspecies may also develop five "horns".<ref name=Seymour/>[Template:Rp](/wiki/Template:Rp) Fewer than 700 are believed to remain in the wild,<ref name=wildstatus/> and more than 450 are kept in zoos.<ref name=ISIS/>

||[150px](/wiki/File:Giraffa_camelopardalis_rothschildi_1.jpg) |- |[**South African giraffe**](/wiki/South_African_giraffe) (*G. c. giraffa*) || Is found in northern [South Africa](/wiki/South_Africa), southern Botswana, southern Zimbabwe, and south-western [Mozambique](/wiki/Mozambique).<ref name=wildstatus/> It has dark, somewhat rounded patches "with some fine projections" on a tawny background colour. The spots extend down the legs and get smaller. The median lump of males is less developed.<ref name=Seymour/>[Template:Rp](/wiki/Template:Rp) A maximum of 12,000 are estimated to remain in the wild,<ref name=wildstatus/> and around 45 are kept in zoos.<ref name=ISIS/>

||[150px](/wiki/File:Giraffe_standing.jpg) |- |[**Rhodesian giraffe**](/wiki/Rhodesian_giraffe) (*G. c. thornicrofti*, after [Harry Scott Thornicroft](/wiki/Harry_Scott_Thornicroft)),[[11]](#cite_note-11) also known as **Thornicroft giraffe** ||Is restricted to the [Luangwa Valley](/wiki/Luangwa_River) in eastern Zambia.<ref name=wildstatus/> The patches are notched and somewhat star-shaped, and may or may not extend across the legs. The median lump of males is underdeveloped.<ref name=Seymour/>[Template:Rp](/wiki/Template:Rp) No more than 1,500 remain in the wild,<ref name=wildstatus/> with none kept in zoos.<ref name=ISIS/>

||[150px](/wiki/File:Giraffa_camelopardalis_thornicrofti.jpg) |- |The [**West African giraffe**](/wiki/West_African_giraffe) (*G. c. peralta*),[[11]](#cite_note-11) also known as [**Niger**](/wiki/Niger) **giraffe** or [**Nigerian**](/wiki/Nigeria) **giraffe**<ref name=IUCNperalta>[Template:IUCN2012.2](/wiki/Template:IUCN2012.2)</ref> || Is [endemic](/wiki/Endemic) to south-western Niger.<ref name=iucn/> This animal has a lighter pelage than other subspecies,<ref name=Kingdon1988/>[Template:Rp](/wiki/Template:Rp) with red lobe-shaped blotches that reach below the hocks. The ossicones are more erect than in other subspecies and males have well-developed median lumps.<ref name=Seymour/>[Template:Rp](/wiki/Template:Rp) It is the most endangered subspecies with fewer than 220 individuals remaining in the wild.<ref name=wildstatus/> Giraffes in Cameroon were formerly believed to belong to this subspecies, but are actually *G. c. antiquorum*.<ref name=WestAfricaGiraffe/> This error resulted in some confusion over its status in zoos, but in 2007, it was established that all "*G. c. peralta*" kept in European zoos actually are *G. c. antiquorum*.<ref name=WestAfricaGiraffe/>

||[150px](/wiki/File:Giraffe_koure_niger_2006.jpg) |} [thumb|300px|right|"Approximate geographic ranges, fur patterns, and](/wiki/File:Genetic_subdivision_in_the_giraffe_based_on_mitochondrial_DNA_sequences.png) [phylogenetic](/wiki/Phylogenetics) relationships between some giraffe subspecies based on [mitochondrial DNA](/wiki/Mitochondrial_DNA) sequences. Colored dots on the map represent sampling localities. The phylogenetic tree is a [maximum-likelihood](/wiki/Maximum-likelihood) [phylogram](/wiki/Phylogenetic_tree#Special_tree_types) based on samples from 266 giraffes. Asterisks along branches correspond to [node](/wiki/Clade#Definitions) values of more than 90% [bootstrap](/wiki/Resampling_(statistics)) support. Stars at branch tips identify [paraphyletic](/wiki/Paraphyletic) [haplotypes](/wiki/Haplotype) found in Maasai and Reticulated giraffes".<ref name=GeneticStructure>[Template:Cite journal](/wiki/Template:Cite_journal)</ref> A 2007 study on the genetics of six subspecies—the West African, Rothschild's, reticulated, Masai, Angolan, and South African giraffe—suggests they may, in fact, be separate species. The study deduced from [genetic drift](/wiki/Genetic_drift) in [nuclear](/wiki/Nuclear_DNA) and [mitochondrial DNA](/wiki/Mitochondrial_DNA) (mtDNA) that giraffes from these populations are [reproductively isolated](/wiki/Reproductive_isolation) and rarely interbreed, though no natural obstacles block their mutual access. This includes adjacent populations of Rothschild's, reticulated, and Masai giraffes. The Masai giraffe may also consist of a few species separated by the [Rift Valley](/wiki/East_African_Rift).<ref name=GeneticStructure/>

Reticulated and Masai giraffes have the highest mtDNA diversity, which is consistent with giraffes originating in eastern Africa. Populations further north are more closely related to the former, while those to the south are more related to the latter. Giraffes appear to select mates of the same coat type, which are imprinted on them as calves.<ref name=GeneticStructure/> The implications of these findings for the conservation of giraffes were summarised by David Brown, lead author of the study, who told [BBC News](/wiki/BBC_News): "Lumping all giraffes into one species obscures the reality that some kinds of giraffe are on the brink. Some of these populations number only a few hundred individuals and need immediate protection."[[15]](#cite_note-15) The West African giraffe is more closely related to Rothchild's and reticulated giraffes than to the Kordofan giraffe. Its ancestor may have migrated from eastern to northern Africa and then to its current range with the development of the Sahara Desert. At its largest, [Lake Chad](/wiki/Lake_Chad) may have acted as a barrier between West African and Kordofan giraffes during the [Holocene](/wiki/Holocene) (before 5000 BC).<ref name=WestAfricaGiraffe/>

## Appearance and anatomy[[edit](/index.php?title=(none)&action=edit&section=4)]

[Template:Commons category](/wiki/Template:Commons_category) [thumb|thumb|Closeup of the head of a giraffe at the](/wiki/File:Giraffe08_-_melbourne_zoo.jpg) [Melbourne Zoo](/wiki/Melbourne_Zoo) [thumb|Giraffe skeleton on display at the](/wiki/File:Giraffe_skeleton.jpg) [Museum of Osteology](/wiki/Museum_of_Osteology), [Oklahoma City, Oklahoma](/wiki/Oklahoma_City,_Oklahoma) Fully grown giraffes stand [Template:Convert](/wiki/Template:Convert) tall, with males taller than females.<ref name=Nowak1999>Nowak, R. M. (1999). [*Giraffe*](http://books.google.com/books?id=7W-DGRILSBoC&lpg=PP1&pg=PA1086#v=onepage&q&f=false) Pages 1086–1089 in *Walker's Mammals of the World. Volume 1.* The Johns Hopkins University Press, Baltimore, USA and London, UK.</ref>[[16]](#cite_note-16)[[17]](#cite_note-17) The tallest recorded male was [Template:Convert](/wiki/Template:Convert) and the tallest recorded female was [Template:Convert](/wiki/Template:Convert) tall.<ref name=Nowak1999/><ref name=Dagg>Dagg, A.I. and J. B. Foster (1976/1982): The Giraffe. Its Biology, Behavior, and Ecology. Krieger Publishing Company, Malabar, Florida (Reprint 1982 with updated supplementary material.)</ref> The average weight is [Template:Convert](/wiki/Template:Convert) for an adult male and [Template:Convert](/wiki/Template:Convert) for an adult female[[18]](#cite_note-18) with maximum weights of [Template:Convert](/wiki/Template:Convert) and [Template:Convert](/wiki/Template:Convert) having been recorded for males and females, respectively.[[16]](#cite_note-16)[[17]](#cite_note-17) Despite its long neck and legs, the giraffe's body is relatively short.<ref name=anatomy/>[Template:Rp](/wiki/Template:Rp) Located at both sides of the head, the giraffe's large, bulging eyes give it good all-round vision from its great height.<ref name=Williams/>[Template:Rp](/wiki/Template:Rp) Giraffes see in colour<ref name=Williams/>[Template:Rp](/wiki/Template:Rp) and their senses of hearing and [smell](/wiki/Olfaction) are also sharp.[[10]](#cite_note-10) The animal can close its muscular nostrils to protect against sandstorms and ants.<ref name=Williams/>[Template:Rp](/wiki/Template:Rp)

The giraffe's [prehensile](/wiki/Prehensile) tongue is about [Template:Convert](/wiki/Template:Convert) long.[[16]](#cite_note-16)[[17]](#cite_note-17) It is purplish-black in colour, perhaps to protect against sunburn, and is useful for grasping foliage, as well as for grooming and cleaning the animal's nose.<ref name=Williams/>[Template:Rp](/wiki/Template:Rp) The upper lip of the giraffe is also prehensile and useful when foraging. The lips, tongue, and inside of the mouth are covered in [papillae](/wiki/Taste_bud) to protect against thorns.[[9]](#cite_note-9)[thumb|(video) A pair of giraffes at](/wiki/File:Giraffa_camelopardalis_reticulata-atTobuZoo-2012.ogv) [Tobu Zoo](/wiki/Tobu_Zoo), in [Saitama](/wiki/Saitama_prefecture), Japan

The coat has dark blotches or patches (which can be orange, [chestnut](/wiki/Chestnut_(color)), brown, or nearly black in colour[[10]](#cite_note-10)) separated by light hair (usually white or [cream](/wiki/Cream_(colour)) in colour[[10]](#cite_note-10)). Male giraffes become darker as they age.<ref name=estes>[Template:Cite book](/wiki/Template:Cite_book)</ref> The coat pattern serves as [camouflage](/wiki/Camouflage), allowing it to blend in the light and shade patterns of savannah woodlands.[[11]](#cite_note-11) While adult giraffes standing among trees and bushes are hard to see at even a few metres' distance, when moving about to gain the best view of an approaching predator, they rely on their size and ability to defend themselves rather than on camouflage, which appears to be more important for calves.[[5]](#cite_note-5) The skin underneath the dark areas may serve as windows for [thermoregulation](/wiki/Thermoregulation), being sites for complex blood vessel systems and large sweat glands.<ref name=Mitchell2004>[Template:Cite journal](/wiki/Template:Cite_journal)</ref> Each individual giraffe has a unique coat pattern.<ref name=estes/>

The skin of a giraffe is mostly gray.[[18]](#cite_note-18) It is also thick and allows it to run through thorn bush without being punctured.<ref name=Williams/>[Template:Rp](/wiki/Template:Rp) The fur may serve as a chemical defence, as its parasite repellents give the animal a characteristic scent. At least 11 main [aromatic](/wiki/Aromaticity) chemicals are in the fur, although [indole](/wiki/Indole) and [3-methylindole](/wiki/3-methylindole) are responsible for most of the smell. Because the males have a stronger odor than the females, the odor may also have sexual function.[[19]](#cite_note-19) Along the animal's neck is a mane made of short, erect hairs.[[9]](#cite_note-9) The one-metre (3.3-ft) tail ends in a long, dark tuft of hair and is used as a defense against insects.<ref name=Williams/>[Template:Rp](/wiki/Template:Rp)

### Skull and ossicones[[edit](/index.php?title=(none)&action=edit&section=5)]

Both sexes have prominent horn-like structures called ossicones, which are formed from ossified cartilage, covered in skin and fused to the skull at the [parietal bones](/wiki/Parietal_bone).<ref name=estes/> Being [vascularized](/wiki/Vascular), the ossicones may have a role in thermoregulation,<ref name=Mitchell2004/> and are also used in combat between males.[[20]](#cite_note-20) Appearance is a reliable guide to the sex or age of a giraffe: the ossicones of females and young are thin and display tufts of hair on top, whereas those of adult males end in knobs and tend to be bald on top.<ref name=estes/> Also, a median lump, which is more prominent in males, emerges at the front of the [skull](/wiki/Skull).[[9]](#cite_note-9) Males develop [calcium](/wiki/Calcium) deposits that form bumps on their skulls as they age.[[10]](#cite_note-10) A giraffe's skull is lightened by multiple [sinuses](/wiki/Sinus_(anatomy)).<ref name=anatomy/>[Template:Rp](/wiki/Template:Rp) However, as males age, their skulls become heavier and more club-like, helping them become more dominant in combat.<ref name=estes/> The upper jaw has a grooved [palate](/wiki/Palate) and lacks front teeth.<ref name=Williams/>[Template:Rp](/wiki/Template:Rp) The giraffe's [molars](/wiki/Molar_(tooth)) have a rough surface.<ref name=Williams/>[Template:Rp](/wiki/Template:Rp)

### Legs, locomotion and posture[[edit](/index.php?title=(none)&action=edit&section=6)]

The front and back legs of a giraffe are about the same length. The [radius](/wiki/Radius_(bone)) and [ulna](/wiki/Ulna) of the front legs are articulated by the [carpus](/wiki/Carpus), which, while structurally equivalent to the human wrist, functions as a knee.[[21]](#cite_note-21) It appears that a [suspensory ligament](/wiki/Suspensory_ligament) allows the lanky legs to support the animal's great weight.[[22]](#cite_note-22) The foot of the giraffe reaches a diametre of [Template:Convert](/wiki/Template:Convert), and the [hoof](/wiki/Hoof) is [Template:Convert](/wiki/Template:Convert) high in males and [Template:Convert](/wiki/Template:Convert) in females.<ref name=Williams/>[Template:Rp](/wiki/Template:Rp) The rear of each hoof is low and the [fetlock](/wiki/Fetlock) is close to the ground, allowing the foot to provide additional support to the animal's weight.[[9]](#cite_note-9) Giraffes lack [dewclaws](/wiki/Dewclaw) and interdigital glands. The giraffe's pelvis, though relatively short, has an [ilium](/wiki/Ilium_(bone)) that is outspread at the upper ends.[[9]](#cite_note-9) A giraffe has only two [gaits](/wiki/Gait): walking and galloping. Walking is done by moving the legs on one side of the body at the same time, then doing the same on the other side.<ref name=estes/> When galloping, the hind legs move around the front legs before the latter move forward,[[10]](#cite_note-10) and the tail will curl up.<ref name=estes/> The animal relies on the forward and backward motions of its head and neck to maintain balance and the counter momentum while galloping.<ref name=Kingdon1988/>[Template:Rp](/wiki/Template:Rp) The giraffe can reach a sprint speed of up to [Template:Convert](/wiki/Template:Convert),[[23]](#cite_note-23) and can sustain [Template:Convert](/wiki/Template:Convert) for several kilometres.[[24]](#cite_note-24) A giraffe rests by lying with its body on top of its folded legs.<ref name=Kingdon1988>[Template:Cite book](/wiki/Template:Cite_book)</ref>[Template:Rp](/wiki/Template:Rp) To lie down, the animal kneels on its front legs and then lowers the rest of its body. To get back up, it first gets on its knees and spreads its hind legs to raise its hindquarters. It then straightens its front legs. With each step, the animal swings its head.<ref name=Williams/>[Template:Rp](/wiki/Template:Rp) In captivity, the giraffe sleeps intermittently around 4.6 hours per day, mostly at night.<ref name=sleep/> It usually sleeps lying down, however, standing sleeps have been recorded, particularly in older individuals. Intermittent short "deep sleep" phases while lying are characterised by the giraffe bending its neck backwards and resting its head on the hip or thigh, a position believed to indicate [paradoxical sleep](/wiki/Paradoxical_sleep).<ref name=sleep>[Template:Cite journal](/wiki/Template:Cite_journal)</ref> If the giraffe wants to bend down to drink, it either spreads its front legs or bends its knees.<ref name=estes/> Giraffes would probably not be competent swimmers as their long legs would be highly cumbersome in the water,[[25]](#cite_note-25) although they could possibly float.[[26]](#cite_note-26) When swimming, the thorax would be weighed down by the front legs, making it difficult for the animal to move its neck and legs in harmony[[25]](#cite_note-25)[[26]](#cite_note-26) or keep its head above the surface.[[25]](#cite_note-25)

### Neck[[edit](/index.php?title=(none)&action=edit&section=7)]

[thumb|200px|Despite the vast difference in neck length the giraffe (right) and the okapi (left) both have seven cervical vertebrae.](/wiki/File:Okapi_Giraffe_Neck.png) The giraffe has an extremely elongated neck, which can be up to [Template:Convert](/wiki/Template:Convert) in length, accounting for much of the animal's vertical height.[[16]](#cite_note-16)[[17]](#cite_note-17)<ref name=Williams/>[Template:Rp](/wiki/Template:Rp)<ref name=Taylor&Wedel2013>[Template:Cite journal](/wiki/Template:Cite_journal)</ref> The long neck results from a disproportionate lengthening of the [cervical vertebrae](/wiki/Cervical_vertebrae), not from the addition of more vertebrae. Each cervical vertebra is over [Template:Convert](/wiki/Template:Convert) long.<ref name=anatomy>[Template:Cite book](/wiki/Template:Cite_book)</ref>[Template:Rp](/wiki/Template:Rp) They comprise 52–54 percent of the length of the giraffe's [vertebral column](/wiki/Vertebral_column), compared with the 27–33 percent typical of similar large ungulates, including the giraffe’s closest living relative, the [okapi](/wiki/Okapi).<ref name=bada>[Template:Cite journal](/wiki/Template:Cite_journal)</ref> This elongation largely takes place after birth, as giraffe mothers would have a difficult time giving birth to young with the same neck proportions as adults.<ref name=van>[Template:Cite journal](/wiki/Template:Cite_journal)</ref> The giraffe's head and neck are held up by large muscles and a strengthened [nuchal ligament](/wiki/Nuchal_ligament), which are anchored by long dorsal spines on the anterior [thoracic vertebrae](/wiki/Thoracic_vertebrae), giving the animal a hump.[[9]](#cite_note-9)[[27]](#cite_note-27)[thumb|left|200px|An adult male giraffe feeding high up on an acacia](/wiki/File:Flickr_-_Rainbirder_-_High-rise_living.jpg) The giraffe's neck vertebrae have [ball and socket joints](/wiki/Ball_and_socket_joint).<ref name=anatomy/>[Template:Rp](/wiki/Template:Rp) In particular, the [atlas](/wiki/Atlas_(anatomy))–[axis](/wiki/Axis_(anatomy)) joint (C1 and C2) allows the animal to tilt its head vertically and reach more branches with the tongue.<ref name=Williams/>[Template:Rp](/wiki/Template:Rp) The point of articulation between the cervical and thoracic vertebrae of giraffes is shifted to lie between the first and second thoracic vertebrae (T1 and T2), unlike most other ruminants where the articulation is between the seventh cervical vertebra (C7) and T1.<ref name=bada/><ref name=van/> This allows C7 to contribute directly to increased neck length and has given rise to the suggestion that T1 is actually C8, and that giraffes have added an extra cervical vertebra.[[27]](#cite_note-27) However, this proposition is not generally accepted, as T1 has other morphological features, such as an articulating [rib](/wiki/Rib), deemed diagnostic of thoracic vertebrae, and because exceptions to the mammalian limit of seven cervical vertebrae are generally characterised by increased [neurological anomalies](/wiki/Neurological_disorder) and maladies.<ref name=bada/>

There are several hypotheses regarding the evolutionary origin and maintenance of elongation in giraffe necks.<ref name=sim2010>[Template:Cite journal](/wiki/Template:Cite_journal)</ref> The "competing [browsers](/wiki/Browsing_(predation)) hypothesis" was originally suggested by [Charles Darwin](/wiki/Charles_Darwin) and challenged only recently. It suggests that competitive pressure from smaller browsers, such as [kudu](/wiki/Kudu), [steenbok](/wiki/Steenbok) and [impala](/wiki/Impala), encouraged the elongation of the neck, as it enabled giraffes to reach food that competitors could not. This advantage is real, as giraffes can and do feed up to [Template:Convert](/wiki/Template:Convert) high, while even quite large competitors, such as kudu, can feed up to only about [Template:Convert](/wiki/Template:Convert) high.<ref name=dt1990>[Template:Cite journal](/wiki/Template:Cite_journal)</ref> There is also research suggesting that browsing competition is intense at lower levels, and giraffes feed more efficiently (gaining more leaf biomass with each mouthful) high in the canopy.[[28]](#cite_note-28)[[29]](#cite_note-29) However, scientists disagree about just how much time giraffes spend feeding at levels beyond the reach of other browsers,<ref name=sim1996/><ref name=sim2010/><ref name=dt1990/><ref name=sexdiff>[Template:Cite journal](/wiki/Template:Cite_journal)</ref> and a 2010 study found that adult giraffes with longer necks actually suffered higher mortality rates under drought conditions than their shorter-necked counterparts. This study suggests that maintaining a longer neck requires more nutrients, which puts longer-necked giraffes at risk during a food shortage.[[30]](#cite_note-30) Another theory, the [sexual selection](/wiki/Sexual_selection) hypothesis, proposes that the long necks evolved as a secondary [sexual characteristic](/wiki/Sexual_dimorphism), giving males an advantage in "necking" contests (see below) to establish dominance and obtain access to sexually receptive females.<ref name=sim1996>[Template:Cite journal](/wiki/Template:Cite_journal)</ref> In support of this theory, necks are longer and heavier for males than females of the same age,<ref name=sim1996/><ref name=sim2010/> and the former do not employ other forms of combat.<ref name=sim1996/> However, one objection is that it fails to explain why female giraffes also have long necks.[[31]](#cite_note-31) It has also been proposed that the neck serves to give the animal greater vigilance.[[32]](#cite_note-32)

### Internal systems[[edit](/index.php?title=(none)&action=edit&section=8)]

[thumb|left|Giraffe bending down to drink. The circulatory system is adapted to deal with blood flow rushing down its neck.](/wiki/File:Flickr_-_Rainbirder_-_Reticulated_Giraffe_drinking.jpg) In mammals, the left [recurrent laryngeal nerve](/wiki/Recurrent_laryngeal_nerve) is longer than the right; in the giraffe it is over [Template:Convert](/wiki/Template:Convert) longer. These nerves are longer in the giraffe than in any other living animal;[[33]](#cite_note-33) the left nerve is over [Template:Convert](/wiki/Template:Convert) long.[[34]](#cite_note-34) Each nerve cell in this path begins in the [brainstem](/wiki/Brainstem) and passes down the neck along the [vagus nerve](/wiki/Vagus_nerve), then branches off into the recurrent laryngeal nerve which passes back up the neck to the larynx. Thus, these nerve cells have a length of nearly [Template:Convert](/wiki/Template:Convert) in the largest giraffes.[[33]](#cite_note-33) The structure of a giraffe's brain resembles that of domestic cattle.<ref name=Williams/>[Template:Rp](/wiki/Template:Rp) It is kept cool by evaporative heat loss in the nasal passages.<ref name=Mitchell2004/> The shape of the skeleton gives the giraffe a small lung volume relative to its mass.<ref name=SkinnerJD2011>[Template:Cite journal](/wiki/Template:Cite_journal)</ref> Its long neck gives it a large amount of [dead space](/wiki/Dead_space_(physiology)), in spite of its narrow windpipe. These factors increase the resistance to airflow. Nevertheless, the animal can still supply enough oxygen to its tissues and it can increase its respiratory rate and oxygen diffusion when running.<ref name=SkinnerJD2011/> [thumb|right|The giraffe's mouth while drinking](/wiki/File:Giraffe-Drinking-Nairobi.JPG) The [circulatory system](/wiki/Circulatory_system) of the giraffe has several adaptations for its great height. Its heart, which can weigh more than [Template:Convert](/wiki/Template:Convert) and measures about [Template:Convert](/wiki/Template:Convert) long, must generate approximately double the blood pressure required for a human to maintain blood flow to the brain. As such, the wall of the heart can be as thick as [Template:Convert](/wiki/Template:Convert).[[10]](#cite_note-10) Giraffes have unusually high heart rates for their size, at 150 beats per minute.<ref name=anatomy/>[Template:Rp](/wiki/Template:Rp) When the animal lowers its head the blood rushes down fairly unopposed and a [rete mirabile](/wiki/Rete_mirabile) in the upper neck prevents excess blood flow to the brain. When it raises again, the blood vessels constrict and direct the blood into the brain so the animal doesn't faint.[[35]](#cite_note-35) The [jugular veins](/wiki/Jugular_vein) contain several (most commonly seven) valves to prevent blood flowing back into the head from the [inferior vena cava](/wiki/Inferior_vena_cava) and [right atrium](/wiki/Right_atrium) while the head is lowered.[[36]](#cite_note-36) Conversely, the blood vessels in the lower legs are under great pressure because of the weight of fluid pressing down on them. To solve this problem, the skin of the lower legs is thick and tight; preventing too much blood from pouring into them.[[11]](#cite_note-11) Giraffes have [oesophageal muscles](/wiki/Esophagus) that are unusually strong to allow regurgitation of food from the stomach up the neck and into the mouth for [rumination](/wiki/Wikt:ruminate).<ref name=anatomy/>[Template:Rp](/wiki/Template:Rp) They have four chambered stomachs, as in all ruminants, and the first chamber has adapted to their specialised diet.[[9]](#cite_note-9) The intestines of an adult giraffe measure more than [Template:Convert](/wiki/Template:Convert) in length[[37]](#cite_note-37) and have a relatively small ratio of small to large intestine.[[37]](#cite_note-37) The liver of the giraffe is small and compact.<ref name=anatomy/>[Template:Rp](/wiki/Template:Rp) A gallbladder is generally present during fetal life, but it may disappear before birth.[[9]](#cite_note-9)[[38]](#cite_note-38)[[39]](#cite_note-39)

## Behaviour and ecology[[edit](/index.php?title=(none)&action=edit&section=9)]

### Habitat and feeding[[edit](/index.php?title=(none)&action=edit&section=10)]

[thumb|A Masai giraffe extending its tongue to feed. Its tongue, lips and palate are tough enough to deal with sharp thorns in trees.](/wiki/File:Giraffe_feeding,_Tanzania.jpg) Giraffes usually inhabit [savannahs](/wiki/Savannah), [grasslands](/wiki/Grassland) and open [woodlands](/wiki/Woodland). They prefer [Acacieae](/wiki/Acacieae), [*Commiphora*](/wiki/Commiphora), [*Combretum*](/wiki/Combretum) and open [*Terminalia*](/wiki/Terminalia_(plant)) woodlands over denser environments like [*Brachystegia*](/wiki/Brachystegia) woodlands.<ref name=Kingdon1988/>[Template:Rp](/wiki/Template:Rp) The Angolan giraffe can be found in desert environments.[[40]](#cite_note-40) Giraffes browse on the twigs of trees, preferring trees of the subfamily Acacieae and the genera *Commiphora* and *Terminalia*,<ref name=kingdon>[Template:Cite book](/wiki/Template:Cite_book)</ref> which are important sources of calcium and protein to sustain the giraffe's growth rate.[[5]](#cite_note-5) They also feed on shrubs, grass and fruit.<ref name=Kingdon1988/>[Template:Rp](/wiki/Template:Rp) A giraffe eats around [Template:Convert](/wiki/Template:Convert) of foliage daily.<ref name=estes/> When stressed, giraffes may chew the bark off branches. Although [herbivorous](/wiki/Herbivorous), the giraffe has been known to visit carcasses and lick dried meat off bones.<ref name=Kingdon1988/>[Template:Rp](/wiki/Template:Rp)

During the wet season, food is abundant and giraffes are more spread out, while during the dry season, they gather around the remaining evergreen trees and bushes.<ref name=kingdon/> Mothers tend to feed in open areas, presumably to make it easier to detect predators, although this may reduce their feeding efficiency.[[41]](#cite_note-41) As a [ruminant](/wiki/Ruminant), the giraffe first chews its food, then swallows it for processing and then visibly passes the half-digested cud up the neck and back into the mouth to chew again.<ref name=anatomy/>[Template:Rp](/wiki/Template:Rp) It is common for a giraffe to salivate while feeding.<ref name=Williams/>[Template:Rp](/wiki/Template:Rp) The giraffe requires less food than many other herbivores because the foliage it eats has more concentrated nutrients and it has a more efficient digestive system.<ref name=kingdon/> The animal's faeces come in the form of small pellets.[[9]](#cite_note-9) When it has access to water, a giraffe drinks at intervals no longer than three days.<ref name=estes/>

Giraffes have a great effect on the trees that they feed on, delaying the growth of young trees for some years and giving "waistlines" to trees that are too tall.<ref name=estes/> Feeding is at its highest during the first and last hours of daytime. Between these hours, giraffes mostly stand and ruminate. Rumination is the dominant activity during the night, when it is mostly done lying down.<ref name=estes/>

### Social life[[edit](/index.php?title=(none)&action=edit&section=11)]

[thumb|left|Gathering of female giraffes. These animals commonly gather in groups.](/wiki/File:Giraffe_(Giraffa_camelopardalis)_females.jpg) Giraffes are usually found in groups. Traditionally, the composition of these groups has been described as open and ever-changing.<ref name=Manyara>[Template:Cite journal](/wiki/Template:Cite_journal)</ref> Giraffes were thought to have few social bonds and for research purposes, a "group" has been defined as "a collection of individuals that are less than a kilometre apart and moving in the same general direction."[[42]](#cite_note-42) More recent studies have found that giraffes do have long-term social associations and may form groups or pairs based on kinship, sex or other factors. These groups may regularly associate with one another in larger communities or sub-communities within a [fission–fusion society](/wiki/Fission–fusion_society).[[43]](#cite_note-43)[[44]](#cite_note-44)[[45]](#cite_note-45) The number of giraffes in a group can range up to 44 individuals.[[45]](#cite_note-45)[Template:Listen](/wiki/Template:Listen) Giraffe groups tend to be sex-segregated[[45]](#cite_note-45) although mixed-sex groups made of adult females and young males are known to occur.[[42]](#cite_note-42) Particularity stable giraffe groups are those made of mothers and their young,[[42]](#cite_note-42) which can last weeks or months.[[46]](#cite_note-46) Social cohesion in these groups is maintained by the bonds formed between calves.[[42]](#cite_note-42) Female association appears to be based on [space-use](/wiki/Philopatry) and individuals may be [matrilineally](/wiki/Matrilineally) related.[[45]](#cite_note-45) Young males also form groups and will engage in playfights. However, as they get older males become more solitary but may also associate in pairs or with female groups.[[45]](#cite_note-45)[[46]](#cite_note-46) Giraffes are not [territorial](/wiki/Territory_(animal)),[[9]](#cite_note-9) but they have [home ranges](/wiki/Home_range).<ref name=estes/> Male giraffes occasionally wander far from areas that they normally frequent.<ref name=Kingdon1988/>[Template:Rp](/wiki/Template:Rp)

Although generally quiet and non-vocal, giraffes have been heard to communicate using various sounds. During courtship, males emit loud coughs.<ref name=estes/> Females call their young by bellowing. Calves will emit snorts, bleats, mooing and mewing sounds. Giraffes also snore, hiss, moan, grunt and make flute-like sounds,[[47]](#cite_note-47) and possibly communicate over long distances using [infrasound](/wiki/Infrasound)[[48]](#cite_note-48)—though this is disputed.[[47]](#cite_note-47) During nighttime, giraffes appear to [hum](/wiki/Humming) to each other above the infrasound range for purposes which are unclear.[[47]](#cite_note-47)

### Reproduction and parental care[[edit](/index.php?title=(none)&action=edit&section=12)]

[thumb|left|Male giraffe mounting a female. Generally, only dominant males are able to mate.](/wiki/File:Giraffa_camelopardalis_angolensis_(mating).jpg) Reproduction in giraffes is broadly [polygamous](/wiki/Polygamous): a few older males mate with the fertile females. Male giraffes assess female fertility by tasting the female's urine to detect [oestrus](/wiki/Oestrus), in a multi-step process known as the [flehmen response](/wiki/Flehmen_response).[[42]](#cite_note-42)[[46]](#cite_note-46) Males prefer young adult females over juveniles and older adults.[[42]](#cite_note-42) Once an oestrous female is detected, the male will attempt to court her. When courting, dominant males will keep subordinate ones at bay.[[46]](#cite_note-46) During copulation, the male stands on his hind legs with his head held up and his front legs resting on the female's sides.<ref name=estes/>

Giraffe [gestation](/wiki/Gestation) lasts 400–460 days, after which a single calf is normally born, although twins occur on rare occasions.<ref name=ap>[Template:Cite web](/wiki/Template:Cite_web)</ref> The mother gives birth standing up. The calf emerges head and front legs first, having broken through the [fetal membranes](/wiki/Fetal_membrane), and falls to the ground, severing the [umbilical cord](/wiki/Umbilical_cord).[[9]](#cite_note-9) The mother then grooms the newborn and helps it stand up.<ref name=Williams/>[Template:Rp](/wiki/Template:Rp) A newborn giraffe is [Template:Convert](/wiki/Template:Convert) tall.[[16]](#cite_note-16)[[17]](#cite_note-17) Within a few hours of birth, the calf can run around and is almost indistinguishable from a one-week-old. However, for the first 1–3 weeks, it spends most of its time hiding;[[49]](#cite_note-49) its coat pattern providing camouflage. The ossicones, which have lain flat while it was in the womb, become erect within a few days.<ref name=estes/> [thumb|Mother giraffe and calves feeding. It is mostly the females that raise young, and they may gather in nursery herds.](/wiki/File:Giraffe_Family.jpg) Mothers with calves will gather in nursery herds, moving or browsing together. Mothers in such a group may sometimes leave their calves with one female while they forage and drink elsewhere. This is known as a "[calving pool](/wiki/Crèche_(zoology))".[[49]](#cite_note-49) Adult males play almost no role in raising the young,<ref name=Kingdon1988/>[Template:Rp](/wiki/Template:Rp) although they appear to have friendly interactions.[[42]](#cite_note-42) Calves are at risk of predation, and a mother giraffe will stand over her calf and kick at an approaching predator.<ref name=estes/> Females watching calving pools will only alert their own young if they detect a disturbance, although the others will take notice and follow.[[49]](#cite_note-49) The bond a mother shares with her calf varies, though it can last until her next calving.[[49]](#cite_note-49) Likewise, calves may suckle for only a month<ref name=Kingdon1988/>[Template:Rp](/wiki/Template:Rp) or as long as a year.[[46]](#cite_note-46) Females become sexually mature when they are four years old, while males become mature at four or five years. However, males must wait until they are at least seven years old to gain the opportunity to mate.<ref name=estes/><ref name=Williams/>[Template:Rp](/wiki/Template:Rp)

### Necking[[edit](/index.php?title=(none)&action=edit&section=13)]

[thumb|left|Male giraffes will engage in necking to establish dominance.](/wiki/File:Giraffe_Ithala_KZN_South_Africa_Luca_Galuzzi_2004.JPG) [thumb|right|The more active kind of necking.](/wiki/File:Giraffe-Necking-Etosha.JPG) Male giraffes use their necks as weapons in combat, a behaviour known as "necking". Necking is used to establish dominance and males that win necking bouts have greater [reproductive success](/wiki/Reproductive_success).<ref name=sim1996/> This behaviour occurs at low or high intensity. In low intensity necking, the combatants rub and lean against each other. The male that can hold itself more erect wins the bout.<ref name=estes/> In high intensity necking, the combatants will spread their front legs and swing their necks at each other, attempting to land blows with their ossicones. The contestants will try to dodge each other's blows and then get ready to counter. The power of a blow depends on the weight of the skull and the arc of the swing.<ref name=estes/> A necking duel can last more than half an hour, depending on how well matched the combatants are.<ref name=Kingdon1988/>[Template:Rp](/wiki/Template:Rp) Although most fights do not lead to serious injury, there have been records of broken jaws, broken necks, and even deaths.<ref name=sim1996/>

After a duel, it is common for two male giraffes to caress and court each other. Such interactions between males have been found to be more frequent than heterosexual coupling.[[50]](#cite_note-50) In one study, up to 94 percent of observed mounting incidents took place between males. The proportion of same-sex activities varied from 30–75 percent. Only one percent of same-sex mounting incidents occurred between females.[[51]](#cite_note-51)

### Mortality and health[[edit](/index.php?title=(none)&action=edit&section=14)]

[thumb|right|Lioness seen with adult giraffe kill](/wiki/File:Lioness_with_giraffe_kill,_jackal_lurking,_kenya,_august_9th_2012.jpg) Giraffes have an unusually long lifespan compared to other ruminants,[[52]](#cite_note-52) up to 25 years in the wild.[[11]](#cite_note-11) Because of their size, eyesight and powerful kicks, adult giraffes are usually not subject to predation.<ref name=estes/> However, they can fall prey to [lions](/wiki/Lion) and are regular prey for them in [Kruger National Park](/wiki/Kruger_National_Park).[[53]](#cite_note-53) [Nile crocodiles](/wiki/Nile_crocodile) can also be a threat to giraffes when they bend down to drink.<ref name=Williams/>[Template:Rp](/wiki/Template:Rp) Calves are much more vulnerable than adults, and are additionally preyed on by [leopards](/wiki/Leopard), [spotted hyenas](/wiki/Spotted_hyena) and [wild dogs](/wiki/Lycaon_pictus).[[10]](#cite_note-10) A quarter to a half of giraffe calves reach adulthood.

Some parasites feed on giraffes. They are often hosts for [ticks](/wiki/Tick), especially in the area around the genitals, which has thinner skin than other areas.[[9]](#cite_note-9) Tick species that commonly feed on giraffes are those of genera [*Hyalomma*](/wiki/Hyalomma), [*Amblyomma*](/wiki/Amblyomma) and [*Rhipicephalus*](/wiki/Rhipicephalus). Giraffes may rely on [red-billed](/wiki/Red-billed_Oxpecker) and [yellow-billed oxpeckers](/wiki/Yellow-billed_oxpecker) to clean them of ticks and alert them to danger. Giraffes host numerous species of internal parasite and are susceptible to various diseases. They were victims of the (now eradicated) viral illness [rinderpest](/wiki/Rinderpest).[[9]](#cite_note-9)

## Relationship with humans[[edit](/index.php?title=(none)&action=edit&section=15)]

[thumb|](/wiki/File:Giraffe_cave_art.jpg)[San rock art](/wiki/San_rock_art) in Namibia depicting a giraffe Humans have interacted with giraffes for millennia. The [San people](/wiki/San_people) of southern Africa have medicine dances named after some animals; the giraffe dance is performed to treat head ailments.[[54]](#cite_note-54) How the giraffe got its height has been the subject of various African [folktales](/wiki/Folklore),<ref name=sim1996/> including one from eastern Africa which explains that the giraffe grew tall from eating too many magic herbs.[[55]](#cite_note-55) Giraffes were depicted in art throughout the African continent, including that of the [Kiffians](/wiki/Kiffian_culture), [Egyptians](/wiki/Ancient_Egypt) and [Meroë](/wiki/Meroë) [Nubians](/wiki/Nubia).<ref name=Williams>[Template:Cite book](/wiki/Template:Cite_book)</ref>[Template:Rp](/wiki/Template:Rp) The Kiffians were responsible for a life-size rock engraving of two giraffes that has been called the "world's largest rock art petroglyph".<ref name=Williams/>[Template:Rp](/wiki/Template:Rp)[[56]](#cite_note-56) The Egyptians gave the giraffe its own [hieroglyph](/wiki/Egyptian_hieroglyphs), named 'sr' in [Old Egyptian](/wiki/Old_Egyptian_language) and 'mmy' in later periods.<ref name=Williams/>[Template:Rp](/wiki/Template:Rp) They also kept giraffes as pets and shipped them around the Mediterranean.<ref name=Williams/>[Template:Rp](/wiki/Template:Rp) [thumb|left|Painting of a giraffe imported to China during the Ming dynasty](/wiki/File:Tribute_Giraffe_with_Attendant.jpg) The giraffe was also known to the [Greeks](/wiki/Ancient_Greece) and [Romans](/wiki/Ancient_Rome), who believed that it was an unnatural hybrid of a [camel](/wiki/Camel) and a leopard and called it *camelopardalis*.<ref name=Williams/>[Template:Rp](/wiki/Template:Rp) The giraffe was among the many animals collected and [displayed](/wiki/Mosaic_Fragment_with_Man_Leading_a_Giraffe_(Art_Institute_of_Chicago)) by the Romans. The first one in Rome was brought in by [Julius Caesar](/wiki/Julius_Caesar) in 46 BC and exhibited to the public.<ref name=Williams/>[Template:Rp](/wiki/Template:Rp) With the [fall of the Western Roman Empire](/wiki/Fall_of_the_Western_Roman_Empire), the housing of giraffes in Europe declined.<ref name=Williams/>[Template:Rp](/wiki/Template:Rp) During the [Middle Ages](/wiki/Middle_Ages), giraffes were known to Europeans through contact with the Arabs, who revered the giraffe for its peculiar appearance.[[10]](#cite_note-10) Individual captive giraffes were given celebrity status throughout history. In 1414, a giraffe was shipped from [Malindi](/wiki/Malindi) to [Bengal](/wiki/Bengal). It was then [taken to China](/wiki/Treasure_voyages) by explorer [Zheng He](/wiki/Zheng_He) and placed in a [Ming dynasty](/wiki/Ming_dynasty) zoo. The animal was a source of fascination for the Chinese people, who associated it with the mythical [Qilin](/wiki/Qilin).<ref name=Williams/>[Template:Rp](/wiki/Template:Rp) The [Medici giraffe](/wiki/Medici_giraffe) was a giraffe presented to [Lorenzo de' Medici](/wiki/Lorenzo_de'_Medici) in 1486. It caused a great stir on its arrival in [Florence](/wiki/Florence).[[57]](#cite_note-57) Another [famous giraffe](/wiki/Zarafa_(giraffe)) was brought from [Egypt](/wiki/History_of_Egypt_under_the_Muhammad_Ali_dynasty) to Paris in the early 19th century as a gift from [Muhammad Ali of Egypt](/wiki/Muhammad_Ali_of_Egypt) to [Charles X of France](/wiki/Charles_X_of_France). A sensation, the giraffe was the subject of numerous memorabilia or "giraffanalia".<ref name=Williams/>[Template:Rp](/wiki/Template:Rp)

Giraffes continue to have a presence in modern culture. [Salvador Dalí](/wiki/Salvador_Dalí) depicted them with [conflagrated](/wiki/Conflagration) manes in some of his surrealist paintings. Dali considered the giraffe to be a symbol of masculinity, and a flaming giraffe was meant to be a "masculine cosmic apocalyptic monster".<ref name=Williams/>[Template:Rp](/wiki/Template:Rp) Several children's books feature the giraffe, including David A. Ufer's *The Giraffe Who Was Afraid of Heights*, [Giles Andreae's](/wiki/Giles_Andreae) *Giraffes Can't Dance* and [Roald Dahl's](/wiki/Roald_Dahl) [*The Giraffe and the Pelly and Me*](/wiki/The_Giraffe_and_the_Pelly_and_Me). Giraffes have appeared in animated films, as minor characters in [Disney's](/wiki/Disney) [*The Lion King*](/wiki/The_Lion_King) and [*Dumbo*](/wiki/Dumbo), and in more prominent roles in [*The Wild*](/wiki/The_Wild) and in the [*Madagascar*](/wiki/Madagascar_(franchise)) films. [Sophie the Giraffe](/wiki/Sophie_the_Giraffe) has been a popular [teether](/wiki/Teether) since 1961. Another famous fictional giraffe is the Toys "R" Us mascot [Geoffrey the Giraffe](/wiki/Toys_%22R%22_Us#Geoffrey_the_Giraffe).<ref name=Williams/>[Template:Rp](/wiki/Template:Rp)

The giraffe has also been used for some scientific experiments and discoveries. Scientists have looked at the properties of giraffe skin when developing suits for [astronauts](/wiki/Astronaut) and [fighter pilots](/wiki/Fighter_pilot)<ref name=anatomy/>[Template:Rp](/wiki/Template:Rp) because the people in these professions are in danger of passing out if blood rushes to their legs. Computer scientists have modeled the coat patterns of several subspecies using [reaction–diffusion](/wiki/Reaction–diffusion) mechanisms.[[58]](#cite_note-58) The [constellation](/wiki/Constellation) of [Camelopardalis](/wiki/Camelopardalis), introduced in the seventeenth century, depicts a giraffe.<ref name=Williams/>[Template:Rp](/wiki/Template:Rp) The [Tswana people](/wiki/Tswana_people) of Botswana saw the constellation [Crux](/wiki/Crux) as two giraffes – [Acrux](/wiki/Acrux) and [Mimosa](/wiki/Beta_Crucis) forming a male, and [Gacrux](/wiki/Gacrux) and [Delta Crucis](/wiki/Delta_Crucis) forming the female.[[59]](#cite_note-59)

### Exploitation and conservation status[[edit](/index.php?title=(none)&action=edit&section=16)]

[thumb|Giraffe killed by tribesmen in](/wiki/File:Bundesarchiv_Bild_105-DOA0377,_Deutsch-Ostafrika,_Giraffe.jpg) [German East Africa](/wiki/German_East_Africa) during the early 20th century Giraffes were probably common targets for hunters throughout Africa.<ref name=Kingdon1988/>[Template:Rp](/wiki/Template:Rp) Different parts of their bodies were used for different purposes.[[9]](#cite_note-9) Their meat was used for food. The tail hairs served as [flyswatters](/wiki/Flyswatter), bracelets, necklaces and thread.[[9]](#cite_note-9) Shields, sandals and drums were made using the skin, and the strings of musical instruments were from the tendons.[[9]](#cite_note-9) The smoke from burning giraffe skins was used by the medicine men of [Buganda](/wiki/Buganda) to treat nose bleeds.<ref name=Kingdon1988/>[Template:Rp](/wiki/Template:Rp) The Humr people of Sudan consume the drink Umm Nyolokh; which is created from the liver and marrow of giraffes. Umm Nyolokh often contains DMT and other psychoactive substances from plants the giraffes eat such as Acacia; and is known to cause hallucinations of giraffes, believed to be the giraffes' ghosts by the Humr.[[60]](#cite_note-60)[[61]](#cite_note-61) In the 19th century, European explorers began to hunt them for sport.<ref name=Williams/>[Template:Rp](/wiki/Template:Rp) Habitat destruction has hurt the giraffe, too: in the [Sahel](/wiki/Sahel), the need for firewood and grazing room for livestock has led to [deforestation](/wiki/Deforestation). Normally, giraffes can coexist with livestock, since they do not directly compete with them.[[11]](#cite_note-11) The giraffe species as a whole is assessed as [Least Concern](/wiki/Least_Concern) from a conservation perspective by the [IUCN](/wiki/International_Union_for_Conservation_of_Nature), as it is still numerous. However, giraffes have been [extirpated](/wiki/Extirpated) from much of their historic range including [Eritrea](/wiki/Eritrea), [Guinea](/wiki/Guinea), [Mauritania](/wiki/Mauritania) and [Senegal](/wiki/Senegal). They may also have disappeared from [Angola](/wiki/Angola), [Mali](/wiki/Mali), and [Nigeria](/wiki/Nigeria), but have been introduced to [Rwanda](/wiki/Rwanda) and [Swaziland](/wiki/Swaziland).<ref name=iucn/> Two subspecies, the [West African giraffe](/wiki/West_African_giraffe) and the [Rothschild giraffe](/wiki/Rothschild_giraffe), have been classified as [Endangered](/wiki/Endangered_species),<ref name=IUCNrothschildi/><ref name=IUCNperalta/> as wild populations of each of them number in the hundreds.<ref name=wildstatus/> In 1997, [Jonathan Kingdon](/wiki/Jonathan_Kingdon) suggested that the [Nubian giraffe](/wiki/Nubian_giraffe) was the most threatened of all giraffes;<ref name=kingdon/> [Template:As of](/wiki/Template:As_of), it may number fewer than 250, although this estimate is uncertain.<ref name=wildstatus/> Private game reserves have contributed to the preservation of giraffe populations in southern Africa.[[11]](#cite_note-11) [Giraffe Manor](/wiki/Giraffe_Manor) is a popular hotel in [Nairobi](/wiki/Nairobi) that also serves as sanctuary for Rothschild's giraffes.[[62]](#cite_note-62) The giraffe is a protected species in most of its range. It is the [national animal](/wiki/National_animal) of Tanzania,[[63]](#cite_note-63) and is protected by law.[[64]](#cite_note-64) Unauthorised killing can result in imprisonment.[[65]](#cite_note-65) In 1999, it was estimated that over 140,000 giraffes existed in the wild, but estimates in 2010 indicate that fewer than 80,000 remain.<ref name=wildstatus/>

## References[[edit](/index.php?title=(none)&action=edit&section=17)]

[Template:Clear](/wiki/Template:Clear) [Template:Reflist](/wiki/Template:Reflist)

## External links[[edit](/index.php?title=(none)&action=edit&section=18)]

[Template:Sister project links](/wiki/Template:Sister_project_links)

* ARKive – [images and movies of the giraffe *(Giraffa camelopardalis)*](http://www.arkive.org/species/GES/mammals/Giraffa_camelopardalis/).
* [Giraffe](http://www.awf.org/content/wildlife/detail/giraffe), [African Wildlife Foundation](/wiki/African_Wildlife_Foundation)
* [Giraffa camelopardalis](http://eol.org/pages/308378/), [Encyclopedia of Life](/wiki/Encyclopedia_of_Life)

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