[Template:Other uses](/wiki/Template:Other_uses" \o "Template:Other uses) [Template:Speciesbox](/wiki/Template:Speciesbox) The **bonobo** ([Template:IPAc-en](/wiki/Template:IPAc-en) or [Template:IPAc-en](/wiki/Template:IPAc-en); *Pan paniscus*), formerly called the **pygmy chimpanzee** and less often, the **dwarf** or **gracile chimpanzee**,[[1]](#cite_note-1) is an [endangered](/wiki/Endangered_Species) [great ape](/wiki/Great_ape) and one of the two [species](/wiki/Species) making up the [genus](/wiki/Genus) [*Pan*](/wiki/Chimpanzee); the other is *Pan troglodytes*, or the [common chimpanzee](/wiki/Common_chimpanzee). Although the name "chimpanzee" is sometimes used to refer to both species together, it is usually understood as referring to the common chimpanzee, whereas *Pan paniscus* is usually referred to as the bonobo.

The bonobo is distinguished by relatively long legs, pink lips, dark face and tail-tuft through adulthood, and parted long hair on its head. The bonobo is found in a [Template:Convert](/wiki/Template:Convert) area of the [Congo Basin](/wiki/Congo_Basin) in the [Democratic Republic of the Congo](/wiki/Democratic_Republic_of_the_Congo), Central Africa. The species is [omnivorous](/wiki/Omnivore) and inhabits [primary](/wiki/Old-growth_forest) and [secondary forests](/wiki/Secondary_forest), including seasonally inundated [swamp forests](/wiki/Swamp_forest). Political instability in the region and the timidity of bonobos has meant there has been relatively little field work done observing the species in its natural habitat.

Along with the common chimpanzee, the bonobo is the closest extant relative to [humans](/wiki/Human). Because the two species are not proficient swimmers, the formation of the [Congo River](/wiki/Congo_River) 1.5–2 million years ago possibly led to the [speciation](/wiki/Speciation) of the bonobo. Bonobos live south of the river, and thereby were separated from the ancestors of the common chimpanzee, which live north of the river. There is no concrete data on population numbers, but the estimate is between 29,500 and 50,000 individuals. The species is listed as [Endangered](/wiki/Endangered_species) on the [IUCN Red List](/wiki/IUCN_Red_List) and is threatened by [habitat destruction](/wiki/Habitat_destruction) and human population growth and movement, though commercial poaching is the most prominent threat. They typically live 40 years in captivity;[[2]](#cite_note-2) their lifespan in the wild is unknown. As of June 2016 a total of 119 live in zoos across Europe; 65 distributed between six different German zoos, and a further 54 in zoos in Belgium, France, the Netherlands and England.

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

Despite the alternative common name "pygmy chimpanzee", the bonobo is not especially diminutive when compared to the common chimpanzee. "Pygmy" may instead refer to the [pygmy peoples](/wiki/Pygmy_peoples) who live in the same area.[[3]](#cite_note-3) The name "bonobo" first appeared in 1954, when [Eduard Paul Tratz](/wiki/Eduard_Paul_Tratz) and [Heinz Heck](/wiki/Heinz_Heck) proposed it as a new and separate generic term for pygmy chimpanzees. The name is thought to be a misspelling on a shipping crate from the town of [Bolobo](/wiki/Bolobo) on the [Congo River](/wiki/Congo_River), which was associated with the collection of chimps in the 1920s.[[4]](#cite_note-4)[[5]](#cite_note-5) The term has also been reported as being a word for "ancestor" in an extinct [Bantu language](/wiki/Bantu_languages).[[5]](#cite_note-5)

## Evolutionary history[[edit](/index.php?title=(none)&action=edit&section=2)]

[Template:Human timeline](/wiki/Template:Human_timeline)[Template:Life timeline](/wiki/Template:Life_timeline)

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

Fossils of *Pan* species were not described until 2005. Existing chimpanzee populations in West and Central Africa do not overlap with the major human fossil sites in East Africa. However, *Pan* fossils have now been reported from [Kenya](/wiki/Kenya). This would indicate that both humans and members of the *Pan* [clade](/wiki/Clade) were present in the East African [Rift Valley](/wiki/East_African_Rift) during the Middle [Pleistocene](/wiki/Pleistocene).[[6]](#cite_note-6) According to A. Zihlman, bonobo body proportions closely resemble those of [*Australopithecus*](/wiki/Australopithecus),[[7]](#cite_note-7) leading evolutionary biologists like [Jeremy Griffith](/wiki/Jeremy_Griffith) to suggest that bonobos may be a living example of our distant human ancestors.[[8]](#cite_note-8)

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

German anatomist [Ernst Schwarz](/wiki/Ernst_Schwarz) is credited with being the first Westerner to recognise the bonobo as being distinctive, in 1928, based on his analysis of a [skull](/wiki/Skull) in the [Tervuren museum](/wiki/Royal_Museum_for_Central_Africa) in Belgium that previously had been thought to have belonged to a juvenile chimpanzee. Schwarz published his findings in 1929.[[9]](#cite_note-9)[[10]](#cite_note-10) In 1933, American anatomist [Harold Coolidge](/wiki/Harold_Jefferson_Coolidge,_Jr.) offered a more detailed description of the bonobo, and elevated it to species status.[[10]](#cite_note-10)[[11]](#cite_note-11) The American psychologist and primatologist [Robert Yerkes](/wiki/Robert_Yerkes) was also one of the first scientists to notice major differences between bonobos and chimpanzees.[[12]](#cite_note-12) These were first discussed in detail in a study by Eduard Paul Tratz and Heinz Heck published in the early 1950s.[[13]](#cite_note-13) The first official publication of the sequencing and assembly of the bonobo genome became publicly available in June 2012. It was deposited with the International Nucleotide Sequence Database Collaboration (DDBJ/EMBL/GenBank) under the EMBL accession number AJFE01000000[[14]](#cite_note-14) after a previous analysis by the [National Human Genome Research Institute](/wiki/National_Human_Genome_Research_Institute) confirmed that the bonobo genome is about 0.4% divergent from the chimpanzee genome.[[15]](#cite_note-15) In addition, [Template:As of](/wiki/Template:As_of) [Svante Pääbo's](/wiki/Svante_Pääbo) group at the [*Max Planck Institute*](/wiki/Max_Planck_Institute) *for Evolutionary Anthropology* were sequencing the genome of a female bonobo from the Leipzig zoo.[[15]](#cite_note-15) Initial genetic studies characterised the [DNA](/wiki/DNA) of chimpanzees and bonobos as being 98% to 99.4% identical to that of [*Homo sapiens*](/wiki/Homo_sapiens).[[16]](#cite_note-16) Later studies showed that chimpanzees and bonobos are more closely related to humans than to [gorillas](/wiki/Gorilla).[[17]](#cite_note-17) In the crucial [*Nature*](/wiki/Nature_(journal)) paper reporting on initial genome comparisons, researchers identified 35 million [single-nucleotide changes](/wiki/Single_nucleotide_polymorphism), five million insertion or deletion events, and a number of [chromosomal rearrangements](/wiki/Chromosomal_translocation) which constituted the genetic differences between the two *Pan* species and humans, covering 98% of the same genes.[[18]](#cite_note-18) While many of these analyses have been performed on the common chimpanzee rather than the bonobo, the differences between the two *Pan* species are unlikely to be substantial enough to affect the *Pan*-*Homo* comparison significantly.

There still is controversy, however. Scientists such as [Jared Diamond](/wiki/Jared_Diamond) in [*The Third Chimpanzee*](/wiki/The_Third_Chimpanzee), and [Morris Goodman](/wiki/Morris_Goodman)[[19]](#cite_note-19) of [Wayne State University](/wiki/Wayne_State_University) in Detroit suggest that the bonobo and common chimpanzee are so closely related to humans that their [genus](/wiki/Genus) name also should be classified with the human genus *Homo*: *Homo paniscus*, *Homo sylvestris*, or *Homo arboreus*. An alternative philosophy suggests that the term *Homo sapiens* is the misnomer rather, and that humans should be reclassified as *Pan sapiens*, though this would violate the [Principle of Priority](/wiki/Principle_of_Priority), as *Homo* was named before *Pan* (1758 for the former, 1816 for the latter). In either case, a name change of the genus would have implications on the [taxonomy](/wiki/Taxonomy_(biology)) of extinct species closely related to humans, including [*Australopithecus*](/wiki/Australopithecus). The current line between *Homo* and non-*Homo* species is drawn about 2.5 million years ago, and chimpanzee and human ancestry converge only about 7 million years ago, nearly three times longer.

DNA evidence suggests the bonobo and common chimpanzee species effectively separated from each other fewer than one million years ago.[[20]](#cite_note-20)[[21]](#cite_note-21) The *Pan* line split from the [last common ancestor](/wiki/Human_evolution) shared with humans approximately six to seven million years ago. Because no species other than *Homo sapiens* has survived from the human line of that branching, both *Pan* species are the closest living relatives of humans and [cladistically](/wiki/Cladistics) are equally close to humans. The recent genome data confirms the genetic equidistance.

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

[Template:Infobox genome](/wiki/Template:Infobox_genome)

The bonobo is commonly considered to be more [gracile](/wiki/Gracility) than the common chimpanzee. Although large male chimpanzees can exceed any bonobo in bulk and weight, the two species actually broadly overlap in body size. Adult female bonobos are somewhat smaller than adult males. Body mass in males ranges from [Template:Convert](/wiki/Template:Convert), against an average of [Template:Convert](/wiki/Template:Convert) in females. The total length of bonobos (from the nose to the rump while on all fours) is [Template:Convert](/wiki/Template:Convert).[[22]](#cite_note-22)[[23]](#cite_note-23)[[24]](#cite_note-24)<ref name = Walker>Novak, R. M. (1999). *Walker's Mammals of the World.* 6th edition. Johns Hopkins University Press, Baltimore, ISBN 0-8018-5789-9</ref> When adult bonobos and chimpanzees stand up on their legs, they can both attain a height of [Template:Convert](/wiki/Template:Convert).[[25]](#cite_note-25) The bonobo's head is relatively smaller than that of the common chimpanzee with less prominent brow ridges above the eyes. It has a black face with pink lips, small ears, wide nostrils, and long hair on its head that forms a parting. Females have slightly more prominent breasts, in contrast to the flat breasts of other female apes, although not so prominent as those of humans. The bonobo also has a slim upper body, narrow shoulders, thin neck, and long legs when compared to the common chimpanzee.

[thumb|left|Bonobos Kanzi (C) and Panbanisha (R) with Sue Savage-Rumbaugh and the outdoor symbols "keyboard." Credit: W. H. Calvin 2006](/wiki/File:Bonobos_Kanzi_and_Panbanisha_with_Sue_Savage-Rumbaugh.jpg) Bonobos are both terrestrial and arboreal. Most ground locomotion is characterized by quadrupedal knuckle walking. Bipedal [walking](/wiki/Walking) has been recorded as less than 1% of terrestrial locomotion in the wild, a figure that decreased with [habituation](/wiki/Habituation),[[26]](#cite_note-26) while in captivity there is a wide variation. Bipedal walking in captivity, as a percentage of bipedal plus quadrupedal locomotion bouts, has been observed from 3.9% for spontaneous bouts to nearly 19% when abundant food is provided.[[27]](#cite_note-27) These physical characteristics and its posture give the bonobo an appearance more closely resembling that of humans than that of the common chimpanzee. The bonobo also has highly individuated facial features,[[28]](#cite_note-28) as humans do, so that one individual may look significantly different from another, a characteristic adapted for visual facial recognition in social interaction.

Multivariate analysis has shown bonobos are more [neotenized](/wiki/Neoteny) than the common chimpanzee, taking into account such features as the proportionately long torso length of the bonobo.[[29]](#cite_note-29) Other researchers challenged this conclusion.[[30]](#cite_note-30)

## Behavior[[edit](/index.php?title=(none)&action=edit&section=6)]

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

Primatologist [Frans de Waal](/wiki/Frans_de_Waal) states bonobos are capable of [altruism](/wiki/Altruism), [compassion](/wiki/Compassion), [empathy](/wiki/Empathy), kindness, patience, and [sensitivity](/wiki/Sensitivity_(human)),[[1]](#cite_note-1) and described "bonobo society" as a "[gynecocracy](/wiki/Gynecocracy)".[[31]](#cite_note-31)[Template:Efn](/wiki/Template:Efn) Primatologists who have studied bonobos in the wild have documented a wide range of behaviors, including aggressive behavior and more cyclic sexual behavior similar to chimpanzees, even though the fact remains that bonobos show more sexual behavior in a greater variety of relationships. An analysis of female bonding among wild bonobos by Takeshi Furuichi stresses female sexuality and shows how female bonobos spend much more time in [estrus](/wiki/Estrus) than female chimpanzees.[[32]](#cite_note-32) Some primatologists have argued that de Waal's data reflect only the behavior of captive bonobos, suggesting that wild bonobos show levels of aggression closer to what is found among chimpanzees. De Waal has responded that the contrast in temperament between bonobos and chimpanzees observed in captivity is meaningful, because it controls for the influence of environment. The two species behave quite differently even if kept under identical conditions.[[33]](#cite_note-33) A 2014 study also found bonobos to be less aggressive than chimpanzees, particularly eastern chimpanzees. The authors argued that the relative peacefulness of western chimpanzees and bonobos was primarily due to ecological factors.[[34]](#cite_note-34)

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

[thumb|Bonobos are very social.](/wiki/File:6_bonobos_WHCalvin_IMG_1341.JPG) [thumb|Bonobo searching for termites](/wiki/File:BonoboFishing05.jpeg) Most studies indicate that females have a higher social status in bonobo society. Aggressive encounters between males and females are rare, and males are tolerant of infants and juveniles. A male derives his status from the status of his mother.[[35]](#cite_note-35) The mother–son bond often stays strong and continues throughout life. While social hierarchies do exist, rank plays a less prominent role than in other primate societies.

Because of the promiscuous mating behavior of female bonobos, a male cannot be sure which offspring are his. As a result, the entirety of parental care in bonobos is assumed by the mothers.[[36]](#cite_note-36) Bonobo [party size](/wiki/Group_size_measures) tends to vary because the groups exhibit a [fission–fusion pattern](/wiki/Fission-fusion_society). A community of approximately 100 will split into small groups during the day while looking for food, and then will come back together to sleep. They sleep in nests that they construct in trees.

### Sexual social behavior[[edit](/index.php?title=(none)&action=edit&section=9)]

[Template:See also](/wiki/Template:See_also) [thumb|Bonobos mating,](/wiki/File:Bonobo_sexual_behavior_1.jpg) [Jacksonville Zoo and Gardens](/wiki/Jacksonville_Zoo_and_Gardens). Sexual activity generally plays a major role in bonobo society, being used as what some scientists perceive as a [greeting](/wiki/Greeting), a means of forming social bonds, a means of [conflict resolution](/wiki/Conflict_resolution), and [postconflict reconciliation](/wiki/Reconciliation_(democratic_process)#In_animals).[[37]](#cite_note-37) Bonobos are the only non-human animal to have been observed engaging in [tongue kissing](/wiki/Tongue_kiss), and [oral sex](/wiki/Oral_sex).<ref name=Manson1997>[Template:Cite journal](/wiki/Template:Cite_journal)</ref> Bonobos and humans are the only primates to typically engage in face-to-face genital sex, although a pair of western gorillas has been photographed in this position.[[38]](#cite_note-38) Bonobos do not form [permanent monogamous sexual relationships](/wiki/Monogamy) with individual partners. They also do not seem to discriminate in their sexual behavior by sex or age, with the possible exception of abstaining from sexual activity between mothers and their adult sons. When bonobos come upon a new food source or feeding ground, the increased excitement will usually lead to communal sexual activity, presumably decreasing tension and encouraging peaceful feeding.[[39]](#cite_note-39) This quality is also described by Dr. [Susan Block](/wiki/Susan_Block) as "The Bonobo Way" in her book of the same title "The Bonobo Way: The Evolution of Peace Through Pleasure".[[40]](#cite_note-40) Bonobo [clitorises](/wiki/Clitoris) are larger and more externalized than in most mammals;[[41]](#cite_note-41) while the weight of a young adolescent female bonobo "is maybe half" that of a human teenager, she has a clitoris that is "three times bigger than the human equivalent, and visible enough to waggle unmistakably as she walks".[[42]](#cite_note-42) In scientific literature, the female–female behavior of bonobos pressing genitals together is often referred to as [genito-genital (GG) rubbing](/wiki/Genital-genital_rubbing),[[39]](#cite_note-39)[[43]](#cite_note-43) which is the non-human analogue of [tribadism](/wiki/Tribadism), engaged in by human females. This sexual activity happens within the immediate female bonobo community and sometimes outside of it. [Ethologist](/wiki/Ethology) [Jonathan Balcombe](/wiki/Jonathan_Balcombe) stated that female bonobos rub their clitorises together rapidly for ten to twenty seconds, and this behavior, "which may be repeated in rapid succession, is usually accompanied by grinding, shrieking, and clitoral engorgement"; he added that it is estimated that they engage in this practice "about once every two hours" on average.[[41]](#cite_note-41) Because bonobos occasionally copulate face-to-face, "evolutionary biologist Marlene Zuk has suggested that the position of the clitoris in bonobos and some other primates has evolved to maximize stimulation during sexual intercourse".[[41]](#cite_note-41) On the other hand, the frequency of face-to-face mating observed in zoos and sanctuaries is not reflected in the wild, and thus may be an artifact of captivity. The position of the clitoris may alternatively permit GG-rubbings, which has been hypothesized to function as a means for female bonobos to evaluate their intrasocial relationships.[[44]](#cite_note-44) [thumb|Group of bonobos](/wiki/File:Pan_paniscus11.jpg) Bonobo males occasionally engage in various forms of male–male genital behavior,[[39]](#cite_note-39)[[45]](#cite_note-45) which is the non-human analogue of [frotting](/wiki/Frot), engaged in by human males. In one form, two bonobo males hang from a tree limb face-to-face while [penis fencing](/wiki/Penis_fencing).[[39]](#cite_note-39)<ref name=penisfencing>[Template:Cite book](/wiki/Template:Cite_book)</ref> This also may occur when two males rub their penises together while in face-to-face position. Another form of genital interaction (rump rubbing) occurs to express reconciliation between two males after a conflict, when they stand back-to-back and rub their scrotal sacs together. [Takayoshi Kano](/wiki/Takayoshi_Kano) observed similar practices among bonobos in the natural habitat.

More often than the males, female bonobos engage in mutual genital behavior, possibly to bond socially with each other, thus forming a female nucleus of bonobo society. The bonding among females enables them to dominate most of the males. Although male bonobos are individually stronger, they cannot stand alone against a united group of females.[[39]](#cite_note-39) Adolescent females often leave their native community to join another community. This migration mixes the bonobo [gene pools](/wiki/Gene_pool), providing [genetic diversity](/wiki/Genetic_diversity). Sexual bonding with other females establishes these new females as members of the group.

Bonobo reproductive rates are no higher than those of the common chimpanzee.[[39]](#cite_note-39) During [oestrus](/wiki/Oestrus), females undergo [a swelling](/wiki/Sexual_swelling) of the [perineal tissue](/wiki/Perineal_tissue) lasting 10 to 20 days. Most matings occur during the maximum swelling.[Template:Citation needed](/wiki/Template:Citation_needed) The gestation period is on average 240 days. [Postpartum amenorrhea](/wiki/Postpartum_amenorrhea) (absence of menstruation) lasts less than one year and a female may resume external signs of oestrus within a year of giving birth, though the female is probably not fertile at this point. Female bonobos carry and nurse their young for four years and give birth on average every 4.6 years.[[3]](#cite_note-3) Compared to common chimpanzees, bonobo females resume the genital swelling cycle much sooner after giving birth, enabling them to rejoin the sexual activities of their society. Also, bonobo females which are sterile or too young to reproduce still engage in sexual activity. Adult male bonobos have sex with infants.[[46]](#cite_note-46) [Frans de Waal](/wiki/Frans_de_Waal), an ethologist who has studied bonobos, remarked, "A lot of the things we see, like pedophilia and homosexuality, may be leftovers that some now consider unacceptable in our particular society."[[47]](#cite_note-47) It is unknown how the bonobo avoids [simian immunodeficiency virus](/wiki/Simian_immunodeficiency_virus) (SIV) and its effects.[[48]](#cite_note-48)

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

The bonobo is an [omnivorous](/wiki/Omnivorous) [frugivore](/wiki/Frugivore); 57% of its diet is fruit, but this is supplemented with leaves, honey, eggs,[[49]](#cite_note-49) meat from small [vertebrates](/wiki/Vertebrates) such as [anomalures](/wiki/Anomalure), [flying squirrels](/wiki/Flying_squirrel) and [duikers](/wiki/Duiker),[[50]](#cite_note-50) and [invertebrates](/wiki/Invertebrates).[[51]](#cite_note-51) In some instances, bonobos have been shown to consume lower-order [primates](/wiki/Primates).<ref name=Surbeck>[Template:Cite journal](/wiki/Template:Cite_journal); [Template:Cite journal](/wiki/Template:Cite_journal)</ref> Some claim bonobos have also been known to practise cannibalism in captivity, a claim disputed by others.[[52]](#cite_note-52)[[53]](#cite_note-53) However, at least one confirmed report of cannibalism in the wild of a deceased infant was described in 2008.<ref name=bbc>[Template:Cite news](/wiki/Template:Cite_news)</ref>[[54]](#cite_note-54)

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

[thumb|Bonobo (*Pan paniscus*) mother and infant at](/wiki/File:Bonobo_(Pan_paniscus)_at_Lola_Ya_Bonobo_-_3.JPG) [Lola ya Bonobo](/wiki/Lola_ya_Bonobo) Observations in the wild indicate that the males among the related common chimpanzee communities are extraordinarily hostile to males from outside the community. Parties of males 'patrol' for the neighboring males that might be traveling alone, and attack those single males, often killing them.[[55]](#cite_note-55) This does not appear to be the behavior of bonobo males or females, which seem to prefer sexual contact over violent confrontation with outsiders. In fact, the Japanese scientists who have spent the most time working with wild bonobos describe the species as extraordinarily peaceful, and de Waal has documented how bonobos may often resolve conflicts with sexual contact (hence the "[make love, not war](/wiki/Make_love,_not_war)" characterization for the species). Between groups, social mingling may occur, in which members of different communities have sex and groom each other, behavior which is unheard of among common chimpanzees. Conflict is still possible between rival groups of bonobos, but no official scientific reports of it exist. The ranges of bonobos and chimpanzees are separated by the Congo River, with bonobos living to the south of it, and chimpanzees to the north.[[56]](#cite_note-56)[[57]](#cite_note-57) It has been hypothesized that bonobos are able to live a more peaceful lifestyle in part because of an abundance of nutritious vegetation in their natural habitat, allowing them to travel and forage in large parties.[[58]](#cite_note-58) Recent studies show that there are significant brain differences between bonobos and chimps. The brain anatomy of bonobos has more developed and larger regions assumed to be vital for feeling empathy, sensing distress in others and feeling anxiety, which makes them less aggressive and more empathic than their close relatives. They also have a thick connection between the [amygdala](/wiki/Amygdala), an important area that can spark aggression, and the ventral anterior cingulate cortex, which helps control impulses. This thicker connection may make them better at regulating their emotional impulses and behavior.[[59]](#cite_note-59) Bonobo society is dominated by females, and severing the lifelong alliance between mothers and their male offspring may make them vulnerable to female aggression. De Waal has warned of the danger of romanticizing bonobos: "All animals are competitive by nature and cooperative only under specific circumstances" and that "when first writing about their behaviour, I spoke of 'sex for peace' precisely because bonobos had plenty of conflicts. There would obviously be no need for peacemaking if they lived in perfect harmony."[[60]](#cite_note-60) Surbeck and Hohmann showed in 2008 that bonobos sometimes do hunt monkey species. Five incidents were observed in a group of bonobos in [Salonga National Park](/wiki/Salonga_National_Park), which seemed to reflect deliberate cooperative hunting. On three occasions, the hunt was successful, and infant monkeys were captured and eaten.<ref name=Surbeck/>

### Similarity to humans[[edit](/index.php?title=(none)&action=edit&section=12)]

Bonobos are capable of passing the [mirror-recognition test for self-awareness](/wiki/Mirror-recognition_test_for_self-awareness),[[61]](#cite_note-61) as are all [great apes](/wiki/Great_apes). They communicate primarily through vocal means, although the meanings of their vocalizations are not currently known. However, most humans do understand their facial expressions[[16]](#cite_note-16) and some of their natural hand gestures, such as their invitation to play. The communication system of wild bonobos includes a characteristic that was earlier only known in humans: bonobos use the same call to mean different things in different situations, and the other bonobos have to take the context into account when determining the meaning.[[62]](#cite_note-62) Two bonobos at the [Great Ape Trust](/wiki/Great_Ape_Trust), [Kanzi](/wiki/Kanzi) and [Panbanisha](/wiki/Panbanisha), have been taught how to communicate using a keyboard labeled with [lexigrams](/wiki/Lexigrams) (geometric symbols) and they can respond to spoken sentences. Kanzi's vocabulary consists of more than 500 English words,[[63]](#cite_note-63) and he has comprehension of around 3,000 spoken English words.[[64]](#cite_note-64) Kanzi is also known for learning by observing people trying to teach his mother; Kanzi started doing the tasks that his mother was taught just by watching, some of which his mother had failed to learn. Some, such as [philosopher](/wiki/Philosopher) and [bioethicist](/wiki/Bioethics) [Peter Singer](/wiki/Peter_Singer), argue that these results qualify them for "[rights to survival and life](/wiki/Right_to_life)" — rights that humans theoretically accord to all [persons](/wiki/Person). (See [great ape personhood](/wiki/Great_ape_personhood)) Afterwards Kanzi was also taught how to use and create stone tools in 1990. Then, within 3 years, three researchers — Kathy Schick, Nicholas Toth and Gary Garufi — wanted to test Kanzi's knapping skills. Though Kanzi was able to form flake technology, he didn't create it the way they expected. Unlike the way hominids did it, where they held the core in one hand and knapped it with the other, Kanzi threw the cobble against a hard surface or against another cobble. This allowed him to produce a larger force to initiate a fracture as opposed to knapping it in his hands.[[65]](#cite_note-65) As in other great apes and humans, third party affiliation toward the victim – the affinitive contact made toward the recipient of an aggression by a group member other than the aggressor – is present in bonobos.[[66]](#cite_note-66) A 2013 study [[67]](#cite_note-67) found that both the affiliation spontaneously offered by a bystander to the victim and the affiliation requested by the victim (solicited affiliation) can reduce the probability of further aggression by group members on the victim (this fact supporting the *Victim-Protection Hypothesis*). Yet, only spontaneous affiliation reduced victim anxiety – measured via self-scratching rates – thus suggesting not only that non-solicited affiliation has a consolatory function but also that the spontaneous gesture – more than the protection itself – works in calming the distressed subject. The authors hypothesize that the victim may perceive the motivational autonomy of the bystander, who does not require an invitation to provide post-conflict affinitive contact. Moreover, spontaneous – but not solicited – third party affiliation was affected by the bond between consoler and victim (this supporting the *Consolation Hypothesis*). Importantly, spontaneous affiliation followed the empathic gradient described for humans, being mostly offered to kin, then friends, then acquaintances (these categories having been determined using affiliation rates between individuals). Hence, consolation in the bonobo may be an empathy-based phenomenon.

Instances in which non-human primates have expressed joy have been reported. One study analyzed and recorded sounds made by human infants and bonobos when they were tickled.<ref name=discoverylaugh>[Template:Cite web](/wiki/Template:Cite_web)</ref> Although the bonobos' laugh was at a higher [frequency](/wiki/Audio_frequency), the laugh was found to follow a [spectrographic](/wiki/Spectroscopy) pattern similar to that of human babies.<ref name=discoverylaugh/>

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

Bonobos are found only south of the [Congo River](/wiki/Congo_River) and north of the [Kasai River](/wiki/Kasai_River) (a tributary of the Congo),<ref name=ancestor>[Template:Cite book](/wiki/Template:Cite_book)</ref> in the humid forests of the [Democratic Republic of Congo](/wiki/Geography_of_the_Democratic_Republic_of_the_Congo) of central [Africa](/wiki/Africa). Ernst Schwarz's 1927 paper “*Le Chimpanzé de la Rive Gauche du Congo*”, announcing his discovery, has been read as an association between the Parisian [Left Bank](/wiki/Left_Bank_(Paris)) and the left bank of the Congo River; the bohemian culture in Paris, and an unconventional ape in the Congo.[[68]](#cite_note-68)

## Conservation status[[edit](/index.php?title=(none)&action=edit&section=14)]

The [IUCN Red List](/wiki/IUCN_Red_List) classifies bonobos as an [endangered species](/wiki/Endangered_species), with conservative population estimates ranging from 29,500 to 50,000 individuals.[[69]](#cite_note-69) Major threats to bonobo populations include [habitat loss](/wiki/Habitat_loss) and hunting for [bushmeat](/wiki/Bushmeat), the latter activity having increased dramatically during the [first](/wiki/First_Congo_War) and [second Congo wars](/wiki/Second_Congo_War) in the [Democratic Republic of Congo](/wiki/Democratic_Republic_of_Congo) due to the presence of heavily armed militias even in remote "protected" areas such as [Salonga National Park](/wiki/Salonga_National_Park). This is part of a more general trend of ape extinction.

As the bonobos' habitat is shared with people, the ultimate success of conservation efforts will rely on local and community involvement. The issue of parks versus people[[70]](#cite_note-70) is salient in the [Cuvette Centrale](/wiki/Cuvette_Centrale) the bonobos' range. There is strong local and broad-based Congolese resistance to establishing national parks, as indigenous communities have often been driven from their forest homes by the establishment of parks. In Salonga National Park, the only national park in the bonobo habitat, there is no local involvement, and surveys undertaken since 2000 indicate the bonobo, the [African forest elephant](/wiki/African_forest_elephant), and other species have been severely devastated by [poachers](/wiki/Poaching) and the thriving bushmeat trade.[[71]](#cite_note-71) In contrast, areas exist where the bonobo and biodiversity still thrive without any established parks, due to the indigenous beliefs and taboos against killing bonobos.

The port town of [Basankusu](/wiki/Basankusu) is situated on the [Lulonga River](/wiki/Lulonga_River), at the confluence of the [Lopori](/wiki/Lopori_River) and [Maringa](/wiki/Maringa_River) Rivers, in the north of the country, making it well placed to receive and transport local goods to the cities of [Mbandaka](/wiki/Mbandaka) and [Kinshasa](/wiki/Kinshasa). With Basankusu being the last port of substance before the wilderness of the Lopori Basin and the Lomako River—–the bonobo heartland—conservation efforts for the bonobo[[72]](#cite_note-72) use the town as a base.[[73]](#cite_note-73)[[74]](#cite_note-74) In 1995, concern over declining numbers of bonobos in the wild led the Zoological Society of Milwaukee, in [Milwaukee, Wisconsin](/wiki/Milwaukee,_Wisconsin), with contributions from bonobo scientists around the world, to publish the Action Plan for *Pan paniscus*: A Report on Free Ranging Populations and Proposals for their Preservation. The Action Plan compiles population data on bonobos from 20 years of research conducted at various sites throughout the bonobo's range. The plan identifies priority actions for bonobo conservation and serves as a reference for developing conservation programs for researchers, government officials, and donor agencies.

Acting on Action Plan recommendations, the ZSM developed the Bonobo and Congo Biodiversity Initiative. This program includes habitat and rain-forest preservation, training for Congolese nationals and conservation institutions, wildlife population assessment and monitoring, and education. The Zoological Society has conducted regional surveys within the range of the bonobo in conjunction with training Congolese researchers in survey methodology and biodiversity monitoring. The Zoological Society’s initial goal was to survey Salonga National Park to determine the conservation status of the bonobo within the park and to provide financial and technical assistance to strengthen park protection. As the project has developed, the Zoological Society has become more involved in helping the Congolese living in bonobo habitat. The Zoological Society has built schools, hired teachers, provided some medicines, and started an agriculture project to help the Congolese learn to grow crops and depend less on hunting wild animals.[[75]](#cite_note-75) During the wars in the 1990s, researchers and international [non-governmental organizations](/wiki/Non-governmental_organization) (NGOs) were driven out of the bonobo habitat. In 2002, the [Bonobo Conservation Initiative](/wiki/Bonobo_Conservation_Initiative) initiated the Bonobo Peace Forest Project supported by the Global Conservation Fund of [Conservation International](/wiki/Conservation_International) and in cooperation with national institutions, local NGOs, and local communities. The Peace Forest Project works with local communities to establish a linked constellation of community-based reserves, managed by local and indigenous people. Although there has been only limited support from international organizations, this model, implemented mainly through DRC organizations and local communities, has helped bring about agreements to protect over [Template:Convert](/wiki/Template:Convert) of the bonobo habitat. According to Dr. Amy Parish, the Bonobo Peace Forest "is going to be a model for conservation in the 21st century."[[76]](#cite_note-76) With grants from the United Nations, USAID, the U.S. Embassy, the World Wildlife Fund, and many other groups and individuals, the Zoological Society also has been working to:

* Survey the bonobo population and its habitat to find ways to help protect these apes
* Develop antipoaching measures to help save apes, forest elephants, and other endangered animals in Congo's Salonga National Park, a UN World Heritage site
* Provide training, literacy education, agricultural techniques, schools, equipment, and jobs for Congolese living near bonobo habitats so that they will have a vested interest in protecting the great apes – the ZSM started an agriculture project to help the Congolese learn to grow crops and depend less on hunting wild animals.
* Model small-scale conservation methods that can be used throughout Congo

Starting in 2003, the U.S. government allocated $54 million to the Congo Basin Forest Partnership. This significant investment has triggered the involvement of international NGOs to establish bases in the region and work to develop bonobo conservation programs. This initiative should improve the likelihood of bonobo survival, but its success still may depend upon building greater involvement and capability in local and indigenous communities.[[77]](#cite_note-77) The Congo is setting aside more than [Template:Convert](/wiki/Template:Convert) of rainforest to help protect the endangered bonobo, in this central African country. U.S. agencies, conservation groups, and the Congolese government have come together to set aside [Template:Convert](/wiki/Template:Convert) of tropical rainforest, the U.S.-based Bonobo Conservation Initiative. The area amounts to just over 1% of the vast Congo – but that means a park larger than the state of Massachusetts.

The bonobo population is believed to have declined sharply in the last 30 years, though surveys have been hard to carry out in war-ravaged central Congo. Estimates range from 60,000 to fewer than 50,000 living, according to the World Wildlife Fund.

In addition, concerned parties have addressed the crisis on several science and ecological websites. Organizations such as the [World Wide Fund for Nature](/wiki/World_Wide_Fund_for_Nature), the [African Wildlife Foundation](/wiki/African_Wildlife_Foundation), and others, are trying to focus attention on the extreme risk to the species. Some have suggested that a reserve be established in a more stable part of Africa, or on an island in a place such as Indonesia. Awareness is ever increasing, and even nonscientific or ecological sites have created various groups to collect donations to help with the conservation of this species.

## See also[[edit](/index.php?title=(none)&action=edit&section=15)]

* [Basankusu](/wiki/Basankusu), DR Congo – base for bonobo research and conservation
* [Chimpanzee genome project](/wiki/Chimpanzee_genome_project)
* [Claudine André](/wiki/Claudine_André)
* [Great ape personhood](/wiki/Great_ape_personhood)
* [Great Ape Project](/wiki/Great_Ape_Project)
* [Kanzi](/wiki/Kanzi) – a captive bonobo who uses language
* [List of apes](/wiki/List_of_apes) – notable individual apes
* [Lola ya Bonobo](/wiki/Lola_ya_Bonobo)

## Notes[[edit](/index.php?title=(none)&action=edit&section=16)]

[Template:Notelist](/wiki/Template:Notelist)

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

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

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

### Books[[edit](/index.php?title=(none)&action=edit&section=19)]

* [de Waal, Frans](/wiki/Frans_de_Waal), and [Frans Lanting](/wiki/Frans_Lanting), *Bonobo: The Forgotten Ape*, [University of California Press](/wiki/University_of_California_Press), 1997. ISBN 0-520-20535-9; ISBN 0-520-21651-2 (trade paperback)
* Kano, Takayoshi, *The Last Ape: Pygmy Chimpanzee Behavior and Ecology,* Stanford, CA: [Stanford University Press](/wiki/Stanford_University_Press), 1992.
* [Savage-Rumbaugh, Sue](/wiki/Sue_Savage-Rumbaugh), and [Roger Lewin](/wiki/Roger_Lewin), *Kanzi: The Ape at the Brink of the Human Mind*, [John Wiley](/wiki/John_Wiley_&_Sons), 1994. ISBN 0-471-58591-2; ISBN 0-471-15959-X (trade paperback)
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* DeBartolo, Anthony. ["The Bonobo: 'Newest' apes are teaching us about ourselves",](http://www.hydeparkmedia.com/bonobo.html) [*Chicago Tribune*](/wiki/Chicago_Tribune) June 11, 1998.
* Schweller, Ken, ["Apes With Apps,"](http://spectrum.ieee.org/computing/software/apes-with-apps/) [*IEEE*](/wiki/IEEE) *Spectrum Magazine*, July 2012.
* Madrigal, Alexis ["Brian the Mentally Ill Bonobo, and How He Healed",](http://www.theatlantic.com/health/archive/2014/06/brian-the-mentally-ill-bonobo-and-how-he-healed/372596/) [*The Atlantic*](/wiki/The_Atlantic), June 11, 2014.
* Parker, Ian ["Swingers"](http://www.newyorker.com/magazine/2007/07/30/swingers-2?currentPage=all), [*The New Yorker*](/wiki/The_New_Yorker), July 30, 2007.

### Journal articles[[edit](/index.php?title=(none)&action=edit&section=21)]

* [Template:Cite journal](/wiki/Template:Cite_journal)
* [Template:Cite journal](/wiki/Template:Cite_journal)
* [Template:Cite journal](/wiki/Template:Cite_journal)

## External links[[edit](/index.php?title=(none)&action=edit&section=22)]

[Template:Commons category](/wiki/Template:Commons_category) [Template:Wikispecies](/wiki/Template:Wikispecies)

* ARKive – [BBC images and movies of the bonobo *(Pan paniscus)*](http://www.arkive.org/species/GES/mammals/Pan_paniscus/)
* [Evolution: Why Sex?](http://www.pbs.org/wgbh/evolution/library/07/3/l_073_03.html)
* [Bonobos: Wildlife summary from the African Wildlife Foundation](http://www.awf.org/content/wildlife/detail/bonobo)
* [Primate Info Net *Pan paniscus* Factsheet](http://pin.primate.wisc.edu/factsheets/entry/bonobo)
* [U.S. Fish & Wildlife Service Species Profile](http://ecos.fws.gov/species_profile/servlet/gov.doi.species_profile.servlets.SpeciesProfile?spcode=A06E)
* ["The Last Great Ape"](http://www.pbs.org/wgbh/nova/bonobos/), an episode of [*Nova*](/wiki/Nova_(TV_series)).
* [Susan Savage-Rumbaugh: Apes that write, start fires and play Pac-Man](http://www.ted.com/index.php/talks/susan_savage_rumbaugh_on_apes_that_write.html) – Ted.com
* [WWF (World Wide Fund for Nature / World Wildlife Fund) – Bonobo species profile](http://wwf.panda.org/what_we_do/endangered_species/great_apes/bonobo/)
* [Encyclopedia of Life](http://eol.org/pages/326448/overview)
* [San Diego Zoo Library: Bonobo, Pan paniscus](http://library.sandiegozoo.org/factsheets/bonobo/bonobo.htm)

[Template:Hominidae nav](/wiki/Template:Hominidae_nav) [Template:Apes](/wiki/Template:Apes) [Template:Portal bar](/wiki/Template:Portal_bar) [Template:Authority control](/wiki/Template:Authority_control)

[Category:Bonobo](/wiki/Category:Bonobo) [Category:Animals described in 1929](/wiki/Category:Animals_described_in_1929) [Category:Primates of Africa](/wiki/Category:Primates_of_Africa) [Category:Fauna of Central Africa](/wiki/Category:Fauna_of_Central_Africa) [Category:Mammals of the Democratic Republic of the Congo](/wiki/Category:Mammals_of_the_Democratic_Republic_of_the_Congo) [Category:Tool-using mammals](/wiki/Category:Tool-using_mammals) [Category:Extant Pleistocene first appearances](/wiki/Category:Extant_Pleistocene_first_appearances)