

TOY STORY



Play is vital to human development – and our closest relatives thrive on it, too. Young chimps just want to have fun, say **RICHARD WRANGHAM** and **SONYA KAHLENBERG**.

Photos by **SUZI ESZTERHAS**

With a mischievous glint in its eyes, a bored young chimp reaches for a stick to amuse itself. There are striking similarities between play in children and young chimps.

THE EXPERTS



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The forest is a giant playground if you're a young chimp.

FOREST GAMES

Like juveniles of other species, when food is plentiful young chimps may spend an hour or more playing every day. They romp alone or with each other, delighting in lengthy tickling or wrestling sessions and chasing each other with gay abandon. Sometimes they even frolic with adult males. More rarely, adult chimps indulge in horseplay – there are surely few more endearing sights than two 40-year-old males lolloping around a sapling as they slap each other's feet.

Chimps occasionally incorporate objects such as leafy branches, sticks or ferns into their games. A particular favourite is a version of tag in which one youngster waves an object in another's face, then rushes away when his or her playmate tries to snatch it.

Playing chimps often have a smile-like expression known as a 'play-face' that is only ever seen in this context. And when play gets especially rambunctious, they make wonderful vocalisations, similar to panting, that resemble human laughter.

IN MAY 1993 Kakama was almost eight years old, a young chimpanzee on the verge of adolescence. He still spent most of his time alone with his mother, Kabarole, who was pregnant with her second offspring and slept a lot. Kakama often acted bored.

At 9.30 one ordinary morning, Kakama was playing by himself, a few metres away from Kabarole. He stamped the ground as he rushed forwards in mock aggression, somersaulted over some dry leaves and came

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to rest straddling a small log. He lay there for a second or so before rolling onwards, clutching the log to his body.

After two more turns Kakama stood up with the log in his right hand and set off through the quiet forest, following his mother. A few minutes later, the pair arrived at a fruiting *Drypetes* tree and started to climb. The log made Kakama's ascent awkward, but he found a good feeding site 18m off the ground, placed it beside him in the fork of a branch and settled down to eat. Whenever he moved to pick more fruits, he never strayed far from his prize.

By mid-morning mother and son were sleepy, so they made fresh nests from the leafy branches of the fruit tree. Kabarole was soon dead to the world, but Kakama was restless. At one point he lay back with his limbs in the air, his log held aloft: he seemed to be playing a version of the ‘aeroplane game’, in which chimp or human mothers hold their infants face-down and ‘fly’ them through the air.

Before long, Kakama climbed out of bed and spent a few minutes making a second nest. This was most odd: the new abode was smaller than a normal nest and in a branch fork – an uncomfortable position for a chimp.

But the nest was not made for a chimp. Kakama placed his log inside, then left. Later he retrieved the object, abandoning it only when he and his mother had to flee from some charging bushpigs.

FITTING IN

What was Kakama up to? Isolated incidents like this are always hard to interpret, but after years of observation we finally know that his behaviour fits a pattern for chimps in the Kanyawara

Kakama, pictured in 2009, on the verge of becoming Kanyawara's alpha male.

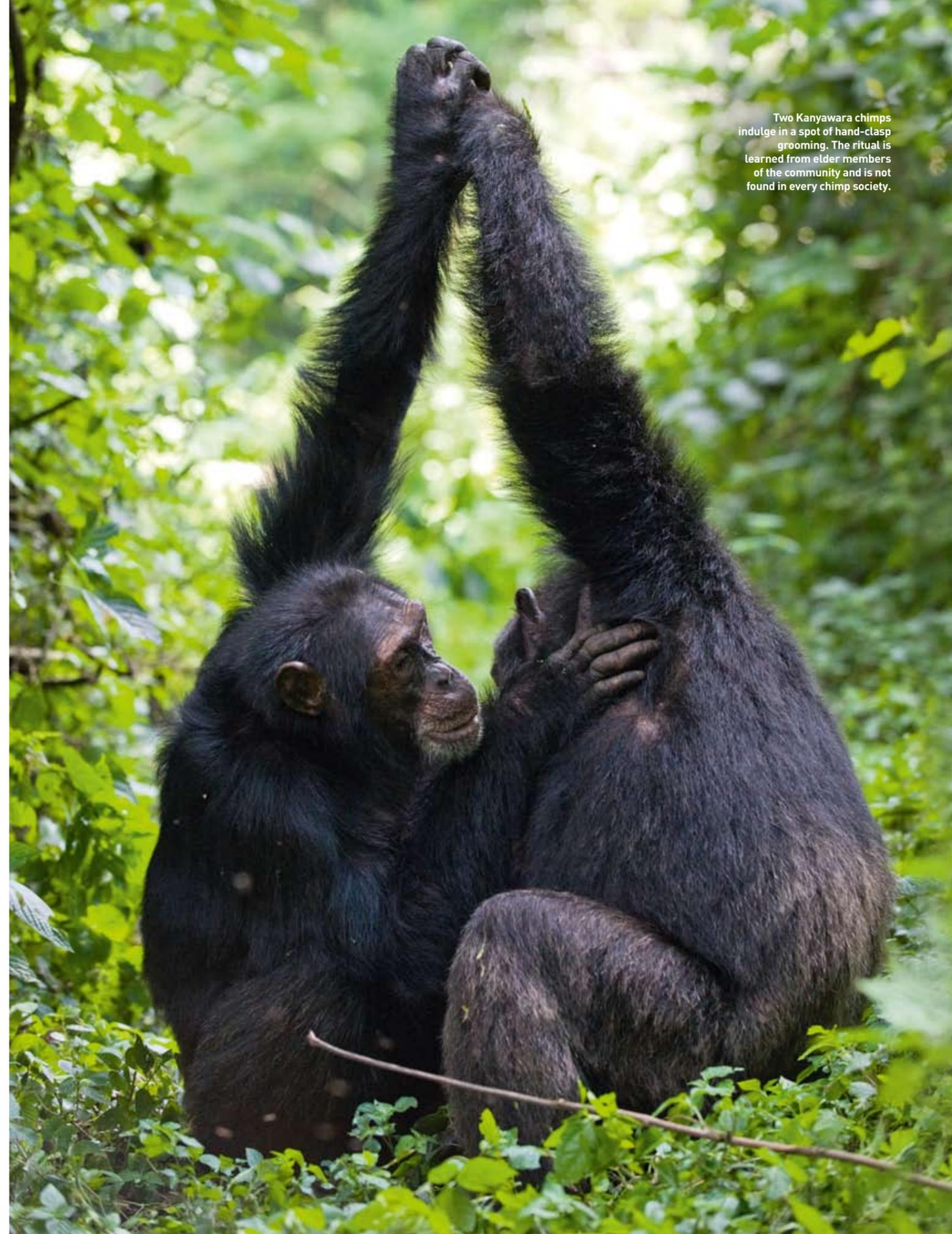


community. To understand why, we first need to introduce the rest of the chimps.

This society of about 50 individuals lives in the mid-altitude forests of Kibale National Park in western Uganda, and is one of the best-known in Africa, having been the focus of detailed fieldwork for more than 20 years (see box, p57). Like wild chimps everywhere, members of the group roam in search of ripe fruit each day. The males tend to be gregarious, often travelling together and calling loudly to one another. The females are quieter and more likely to forage alone, with just their youngsters in tow. But no chimp is truly solitary: females also move around in small sub-groups in which their offspring can let off steam and learn together.

Experiments on captive chimps show how good they are at learning from each other, and in the wild the role of social learning is equally clear. The species' behavioural repertoire has been documented in detail in a dozen communities in different parts of Africa, from Senegal to Tanzania.

In some places chimps use logs to smash hard-shelled nuts and in others they use rocks for this purpose, but elsewhere they may ignore the same type of nuts entirely. In some areas chimps place long, smoothed green sticks on ant nests, watch



Two Kanyawara chimps indulge in a spot of hand-clasp grooming. The ritual is learned from elder members of the community and is not found in every chimp society.



Most mothers are very affectionate towards their infants, spending a lot of time playing with them and keeping watch when they go off with their peers.



Juvenile chimps often amuse themselves by climbing on thin branches until they break.

CHILD'S PLAY

Like human children, chimps have strong preferences about toys.

Tool-using chimps are very particular about the size and shape of stick they put to various purposes, and our studies of the Kanyawara society at Kibale show that play is no exception.

The sticks that these chimps carry as toys are thicker than those they select as honey probes (usually at least 4cm in diameter, compared with less than 2.5cm for probes), and are often about the length of an infant. This places them in the lower size range of the sticks used in display or as clubs or spears. Male chimps use sticks aggressively more often than females, starting in early adolescence (eight or nine years old) and continuing into adulthood.



the ants crawl upwards, then swipe off the insects and eat them, whereas in others they use short sticks and a slightly different technique. Some chimp societies take no notice of the ants at all – apparently because they simply do not know how to exploit this valuable food source.

Feeding methods and other learned practices vary so much between different chimp communities that, so far, every society studied has been found to have unique behaviour. In other words, they have their own cultures.

CULTURED APES

Watching adults seems to be a vital way for youngsters to pick up valuable knowledge from their relatives. The chimps at Kanyawara use leaves to dab at wounds and clean themselves, to make sponges for collecting water from streams or tree holes, and to make noises to attract each other's attention. They use long, thin sticks as probes to test whether holes in dead wood contain honey (or 'bee-bread' – a honey-pollen mix) made by carpenter bees; if they do, the chimps break open the tunnel to reach the prize. They wield larger sticks as display items and sometimes as weapons, even clubbing other community members ferociously on occasion.

On the other hand, as with humans, some of the chimps' acquired traits are more useful than others. The rewards of certain learned

behaviour seem to be fairly insignificant. For instance, the Kanyawara community is one of several in which individuals use a posture known as hand-clasp grooming. It occurs when one chimp has been grooming another without the favour being returned. The groomer raises his or her arm, the other chimp does the same, and the pair clasp hands in a shared salute. When their arms fall a minute or so later, the pair often exchange roles.

DID YOU KNOW?

When an infant dies, the mother may carry its body for days or even weeks. By this time the corpse looks more like a stick, but she is still deeply attached.

Any Kanyawara chimp old enough to groom practises hand-clasp grooming, but it has not been recorded in some other communities (such as the one at Gombe Stream in western Tanzania, made famous by Jane Goodall). Why do our study chimps do it, when others don't? The variation is clearly cultural,

yet there is no evidence that the behaviour makes life better for those who do it.

JUST FOR FUN

We have seen other unusual and equally difficult-to-explain forms of behaviour in our chimps. What, for example, was young Kakama up to back in 1993? Like hand-clasp grooming, his behaviour that day appeared to offer no practical benefits.

Since that startling observation, our team has frequently seen Kanyawara chimps carrying sticks in similar ways, sometimes

“Our finding that female chimps use objects as ‘dolls’ more than males do fits the classic playground pattern.”

for hours. What if they are playing, and the sticks are effectively toys? That would explain the care directed towards the objects, which may even include making a nest – a kind of toy box – for them.

All over the world, human children play with dolls, and in every culture girls do so more than boys. So if stick-carrying among chimps is a form of 'doll play', one might expect youngsters to do it more than adults, and females more than males.

This is exactly the pattern we have found at Kanyawara. Adult males, and females who have had their first baby, never carry sticks without using them as a probe or a weapon. Meanwhile, among the juveniles, females carry sticks 'just for fun' more often than males. The 'toys' are also commonly brought into nests, unlike probes and other utilitarian implements.

Similar stick-carrying has occasionally been reported in other chimp populations. In Bossou (Guinea), a juvenile female once clutched a stick against her chest and patted it fondly like a baby.

These are the first known records of wild animals using objects as 'dolls'. Our finding that female chimps engage in this behaviour more than males, combined with previous observations that young males use sticks as weapons more than females, fits the classic playground pattern of girls playing with dolls and boys preferring guns. The chimps are not taught to behave like this – it seems they learn to do so without adult guidance.

IN HIS PRIME

Kakama now has grey whiskers peppering his chin. He worked his way up the male hierarchy until last summer when, aged 24, he at last took the coveted alpha position. He no longer carries 'dolls', but as the top male he will probably father several offspring who will play with sticks of their own.

Only time will tell what new cultural innovations future generations of chimps will invent. In the meantime, let us hope that those at Kibale will always be there to show their human relatives new evidence of imagination in the forest.

GET INVOLVED

To learn more about the Kibale Chimpanzee Project and how to see the forest's chimps, visit www.fas.harvard.edu/~kibale

TWO CHIMPS OF THE LOST GORGE, about Ugandan chimps, airs on BBC2 as part of the winter season of *Natural World*.



Rival males fighting.

TIMELINE

Highlights from 23 years of research at Kanyawara

1992 *Social bonds between female chimps are weaker than those between males*
Male chimps put more effort into building ties with members of the same sex.

1995 *Chimps use medicine*
Individuals swallow specific types of leaves to help get rid of parasitic worms.

1997 *Closely bonded male chimps are not closely related*
Genetic studies show that brotherly love is less important than previously supposed.

2001 *Male chimps listen to the calls of rivals to assess the strength of other societies*
Males respond aggressively only when they outnumber opponents by at least 3:1.

2004 *High-ranking males are most aggressive*
Male testosterone levels increase when they compete for sexually receptive females.

2004 *More dominant males are more stressed*
Higher-ranking males produce more cortisol, probably because of the effort it takes to maintain dominance.

2006 *Males prefer to mate with old females*
The chimpanzee mating system contrasts with the human strategy.

2007 *Males trade matings for support*
Alpha males give lower-ranking subordinates access to females if they have offered support.

2007 *Monkey hunts by chimps are provoked by a few individuals*
The presence of males who are particularly adept hunters encourages others to join in.

2007 *Females with high-quality diets enjoy greater reproductive success*
Females using areas of the home range with the best food resources have higher offspring survival and shorter intervals between births.

2010 *Most females have a hard life*
High cortisol levels show that adult females suffer increasing physiological stress with age. The same is true of low-ranking females and those bullied by males or short of food.

2010 *Young female chimps play with dolls*
Infants and juveniles carry sticks without using them for any specific purpose, and females do so more than males.