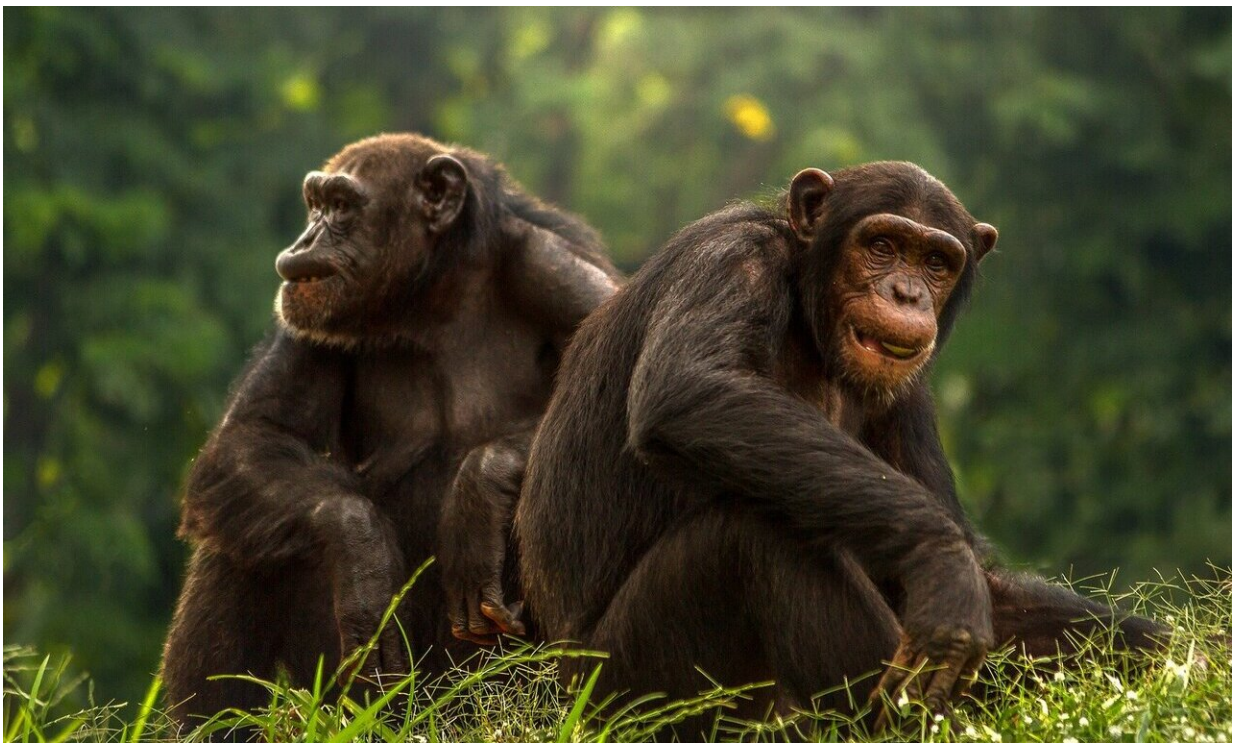


Chimps and bonobos can recognize long-lost friends and family for decades, find researchers

December 18 2023



Credit: CC0 Public Domain

Researchers led by a University of California, Berkeley, comparative psychologist have found that great apes and chimpanzees, our closest living relatives, can recognize groupmates they haven't seen in over two

decades—evidence of what's believed to be the longest-lasting nonhuman memory ever recorded.

The findings also bolster the theory that [long-term memory](#) in humans, chimpanzees and bonobos likely comes from our shared common ancestor that lived between 6 million and 9 million years ago.

The team used infrared eye-tracking cameras to record where bonobos and chimps gazed when they were shown side-by-side images of other bonobos or chimps. One picture was of a stranger; the other was of a [bonobo](#) or chimp that the participant had lived with for a year or more.

Participants' eyes lingered significantly longer on images of those with whom they had previously lived, the researchers found, suggesting some degree of recognition. In one case, a bonobo named Louise had not seen her sister, Loretta, or nephew, Erin, for over 26 years. But when researchers showed Louise their images, her eyes homed in on the photos.

"These animals have a rich recognition of each other," said Laura Simone Lewis, a UC President's Postdoctoral Fellow in Berkeley's psychology department and lead author of the study, which was published in the journal *Proceedings of the National Academies of Sciences*.

What's more, participants looked longer at individuals with whom they had had more positive, as compared with antagonistic, relationships. In other words, they seemed to recognize friends more than foes.

"We don't know exactly what that representation looks like, but we know that it lasts for years," she said. "This study is showing us not how different we are from other apes, but how similar we are to them and how similar they are to us."

The findings expand what was known about long-term [memory](#) in animals and also raise questions central to evolutionary biology and psychology. Chief among them: How did humans develop such good long-term memory?

Understanding the links between our vivid, [episodic memory](#) and the recall of other animals has long been a research puzzle. Previous studies have shown that ravens, for example, [remember people who tricked them](#) and can [recall social relationships in uncanny ways](#). Social memory beyond just a few years had previously been documented only in dolphins, which studies have found can [recognize vocalizations for up to 20 years](#).

"That, up until this point, has been the longest long-term social memory ever found in a nonhuman animal," Lewis said of the dolphin research. "What we're showing here is that chimps and bonobos may be able to remember that long—or longer."

Lewis's project was one born from a longtime observation among primate researchers, who often go months or years between seeing the animals they study. When they returned, bonobos and chimpanzees acted as if they were picking up right where they left off. So the researchers decided to see if that memory hunch was true.

To get answers, the team began what at times was equal parts genealogy and scrapbooking.

First, they needed to identify bonobos and chimps that had been separated from what we might view as friends or family. Sometimes, their groupmates had been relocated to other zoos to prevent in-breeding. Other times, a sibling or elder may have died while they all lived together.

With a list of pairs in hand, sprinkled across zoos in Europe and Japan, researchers needed to track down photos to show the participants. It couldn't be just any snapshot, however. They needed a quality image taken from around the time that the pair last saw one another. This was somewhat easy for the animals that were separated recently in an era rich with high-quality photos. It proved much trickier for others, like Louise's relatives, who were separated circa 1995.

The team ended up being able to show images to 26 bonobos and chimpanzees.

After setting up a [computer system](#) with sensitive cameras and non-invasive eye-tracking tools, participating animals were allowed to enter the room voluntarily. Their compensation? A bottle filled with diluted juice. (Bonobos and chimps love fruit juice and eat lots of fruit in the wild.)

As they sipped, the screens in front of them alternated between pairs of images. The cameras monitored where the animals' eyes wandered. And the computer logged the time spent on each image down to a fraction of a second—data the team would comb through months later.

"It was a really simple test: Do they look longer at their previous groupmate, or are they looking longer at the stranger?" Lewis said. "And we found that, yes, they are looking significantly longer at the pictures of their previous groupmates."

Lewis said she and others were especially concerned about how the participants might react when they were shown an image of a relative they hadn't seen in years. As the project began, zookeepers monitored the animals for signs of stress. But they didn't show any markers of agitation. Instead, when images of a once-close relative appeared on the screen, the participants would sometimes stop drinking the juice

entirely, seemingly mesmerized by the image.

The study showed that something is happening with the mind in recognizing the images. What's unclear is what kind of memories they were. Could they have been rich, episodic narratives like humans have? Might there have been some fleeting curiosity about why they saw this? Can they extrapolate what those relatives might look like today?

These are the next questions for Lewis. Born and raised in Berkeley, Lewis attended Duke University and Harvard University and conducted a fellowship at the University of St. Andrews. Lewis' co-authors include researchers from Harvard, Johns Hopkins University, Kyoto University, the University of Antwerp in Belgium and the University of Konstanz in Germany.

Lewis returned to Berkeley earlier this year as a postdoctoral fellow. It was a homecoming of sorts, she said, and she plans to continue asking big questions about what our closest living ancestors can teach us about our memory. Partly it's out of a curiosity that drives science. It's also out of a determination to conserve the habitats that are home to endangered bonobos—animals that can teach us about ourselves.

"This study is reminding us how similar we are to other species walking on the planet," Lewis said. "And therefore, how important it is to protect them."

More information: Lewis, Laura S. et al, Bonobos and chimpanzees remember familiar conspecifics for decades, *Proceedings of the National Academy of Sciences* (2023). [DOI: 10.1073/pnas.2304903120](https://doi.org/10.1073/pnas.2304903120).
doi.org/10.1073/pnas.2304903120

Provided by University of California - Berkeley

Citation: Chimps and bonobos can recognize long-lost friends and family for decades, find researchers (2023, December 18) retrieved 29 April 2024 from <https://phys.org/news/2023-12-chimps-bonobos-long-lost-friends-family.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.