

Chimpanzees

Ape escape: how travelling broadens the minds of chimps

The study centred on a chimp called Hawa from Uganda and his companion Squibs

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By **VICTORIA WOOLLASTON**

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Credit **Andrew Bernard**

More than seven years of research has discovered that [chimps](#) who 'travel' and journey farther into their surroundings on a daily basis than their peers are more likely to use tools to forage for food.

The study featured a wild chimp called Hawa from the Budongo Forest in [Uganda](#) who burns a lot of energy 'travelling', which he has learnt to replenish with honey, and his companion Squibs who makes less of an effort to roam and has not acquired the skills needed to extract the food.

Researchers also found a low quantity of ripe fruit increases the chimpanzees' motivation to acquire new foraging skills, but the effect is less pronounced than travel. Furthermore, the pattern was repeated in other members of the studied group.

The team reviewed data from nine other chimp communities to confirm this. Chimpanzees' closest relative, the Bonobo, travels around the same average distance as the Sonso and other Ugandan chimpanzees and uses a similar set of tools. Gorillas and most orangutans show limited or no feeding-related tool use and spend significantly less time travelling per day on the ground compared to chimpanzees. In contrast, modern human hunter-gatherers walk on average 11.4 to 14.1 km per day and use many more tools than any of the great apes.



Lead researcher Dr Thibaud Gruber is pictured with wild chimps from the Sonso community in Budongo Forest, Uganda

Credit **Nina Hanninen**

"Our results show travel fosters tool use in wild chimpanzees and it may also have been a driving force in early technological evolution by humans," said Dr Thibaud Gruber from the University of Geneva. "After seven years of field work, I had a massive amount of data and there was clear variation in how chimpanzees engaged with the experiment. I thought it would be interesting to analyse why."

In particular, Dr Gruber studied 70 individuals of the Sonso community of chimpanzees, *Pan troglodytes schweinfurthii*, known for its limited tool use behaviour. This made them ideal subjects to study how tool use emerges. The only feeding-related tools they use are folded leaves, usually to collect water, and moss to soak up mineral deposits from a clay pit.



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As part of the study, Dr Gruber developed what he calls the 'honey trap experiment'. The Sonso chimpanzees already use their fingers to take honey from bees' nests, with limited success. In the experiment, a hole was drilled into a log and partially filled with the honey meaning it could only be accessed with an implement.

Most of the individuals who successfully extracted honey used the community's habitual tool, the folded leaf sponge, while two used a stick. A total of 21 instances of tool use were observed in 11 individuals.

The team reviewed the data against a range of variables including the quantity of ripe fruits eaten and the average daily distance the chimpanzees travelled.

"We didn't expect travel to be that important, and were surprised that it had an even greater influence than if they fed less on their preferred food of ripe fruits," said Gruber.

The team conclude that travel creates an extra need for high-energy food while the challenge of inaccessible honey created an opportunity for innovation. The team did not analyse the potential influence of social learning to influence it, though.



Credit **Andrew Bernard**

from one individual named Nick, whose behaviour was copied by a dominant female and quickly spread.

The latest study also reveals the influence of local ecology in the development of tool use. The Budongo Forest has provided a rich environment for chimps, which could explain the previous lack of tool use in the Sonso community. However, in the last few decades the food supply has decreased.

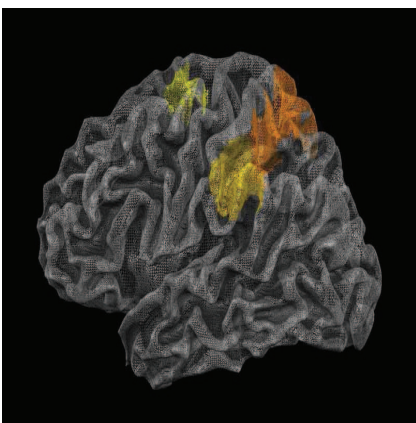
It has been suggested that the development of tool use and sociality in early humans could likewise have been in response to changes in their habitat, brought on by [climate change](#).

"When times are changing, you have to adapt your behaviour and our data illustrate chimps will pay more attention to the possibilities offered by their environment in more demanding periods," says Gruber.

The [research](#) was also supported by the University of Neuchâtel and is published in the journal *eLife*.

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