

# Chimpanzee population in DR Congo develops their own customs and traditions

After 12 years documenting a large group of chimpanzees living in the Bili-Uéré region located in the northern part of the Democratic Republic of the Congo, Dr Thurston Cleveland (Cleve) Hicks from the University of Warsaw, Poland, proposes a very specific set of customs and traditions for these animals. Not only do they make their own specialised tools to catch insects and pound open termite mounds, but they often build their beds on the ground instead of up in the trees.

In one of the last remaining intact stretches of primeval wilderness in the world – the Bili-Uéré region located in the northern part of the Democratic Republic of the Congo – lives a large population of our close evolutionary cousins, the chimpanzees (*Pan troglodytes subspecies schweinfurthii*). This population of apes exhibits some unusual behaviours, such as nesting on the ground like gorillas. There were rumours about the existence of these extraordinary ‘Bili apes’ for years, but it wasn’t until recently that a team of researchers, led by primatologist Cleve Hicks, who is currently based at The Faculty of ‘Artes Liberales’ at The University of Warsaw, were finally able

to make their way across miles of thick jungle and crocodile-inhabited waters to study these animals.

Based on over 2,000 km of forest surveys over a >50,000 km<sup>2</sup> region, Hicks and his team estimated that there were thousands or even tens of thousands of apes – known as Bili-Uéré chimpanzees – roaming the area, on both sides of a major river, the Uele. Interestingly, this population of chimpanzees inhabits forest on one side of the river and savanna-woodland on the other, making it the perfect spot to document the potential effects of ecological differences on animal behaviour.

Despite the logistical difficulties involved in reaching such a remote area, as well as the ever-present threat of malaria and the dangers of armed conflict, Hicks was keen to study and document how these chimpanzees live, including tool making, feeding habits and sleeping style.

## MAKING TOOLS

Following in the footsteps of wildlife photographer Karl Ammann, and working together with Ammann, The Wasmoeth Wildlife Foundation and the University of Amsterdam (where he was enrolled as a PhD candidate under the guidance of Professor Steph Menken), Cleve Hicks and his team first documented the behaviour and distribution of the Bili-Uéré chimpanzees in 2004. For 12 years and across 20 different survey zones, the team collected information on tools, dung, diet and sleep to reveal a vast, complex and thriving chimpanzee culture. Hicks was the first researcher who, with the help of local experts, was able to get close enough for long enough to develop a deep understanding of the way of life of these elusive great apes. He found they use a range of tools to acquire insects and honey.

These chimpanzees were, in fact, very meticulous about how they used their tools. For example, for aggressive driver ants, they used a long thick stick to probe deep into the ants’ cavernous mounds. The extreme length of these tools (sometimes surpassing 2 m in length - these are the longest insect-hunting tools yet known to be used by the species) may allow them to keep their distance from these viciously biting ants, which can swarm in the millions. In contrast, ponerine ants appear to have



Map of the study area with the survey regions labelled. The area is divided by the large Uele River, with different habitat types predominating to the north and south.

been crushed with a short and stubby stick to disable their sting. Given the excruciating nature of their stings, it is no wonder the chimpanzees were keen to incapacitate them before munching on these insects. Finally, the chimpanzees use stout digging sticks to unearth tasty honey from subterranean beehives, and delicate thin wands to prey on ‘wimpy’ non-swarming *Dorylus kohli* ants.

While it is fascinating that the Bili-Uéré chimpanzees use different tools for

mounds, made by *Cubitermes* species and *Thoracotermes macrothorax*, against substrates. This is a food resource that, although common across tropical Africa, most chimpanzees in other regions simply ignore. In contrast, the Bili chimpanzees paid no attention to the widespread and abundant *Macrotermes* termite mounds. These are a favourite delicacy for many chimpanzee populations, including at Gombe, where Jane Goodall famously observed chimpanzees using tools to catch these

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different tasks, there is a second layer to Dr Hicks’ work: it can help us understand the evolution of our own prehistoric hominin ancestors. It is not unreasonable to think that these ancient two-legged apes, the Australopithecines, would have used similar artefacts, such as sticks and wands, to acquire food. Many of these tools would have been made of perishable materials, leaving no traces for modern-day archaeologists to find. In this way, learning about chimpanzee tools can give us a glimpse of how human material culture might have evolved.

## FOOD CHOICES

The team also noticed that the Bili-Uéré chimpanzees have different eating habits compared to other populations. They crack open two kinds of termite

termites for the first time in 1960, but they are apparently never a meal for Bili-Uéré apes.

Explaining why these particular chimpanzees avoid *Macrotermes*



presents a challenge. After all, other groups have learned to use tools to prey on these termites, and they are sometimes even eaten by hand. For Cleve Hicks, this is where the concept of culture might be useful. We can define culture as a type of behaviour transmitted socially to all the animals in a group, rather than choices dictated simply by the resources available. In this context, the mismatch between what is available and what the animals chose to eat is consistent with the idea of culture. It is not like the Bili-Uéré apes have no *Macrotermes* to eat, they just lack a tradition for doing so. Nevertheless, the researchers must be careful to exclude ecological or genetic factors which may contribute to these behavioral differences, and this is not so easy to do in practice.

Cleve Hicks’ team also documented evidence that these chimpanzees hunt or scavenge other animals, including African giant snails, tortoises, pangolins – and even leopards. At another site in DRC, researchers even witnessed chimpanzees hunched over the fresh carcass of an okapi, which they had apparently pirated from a leopard.

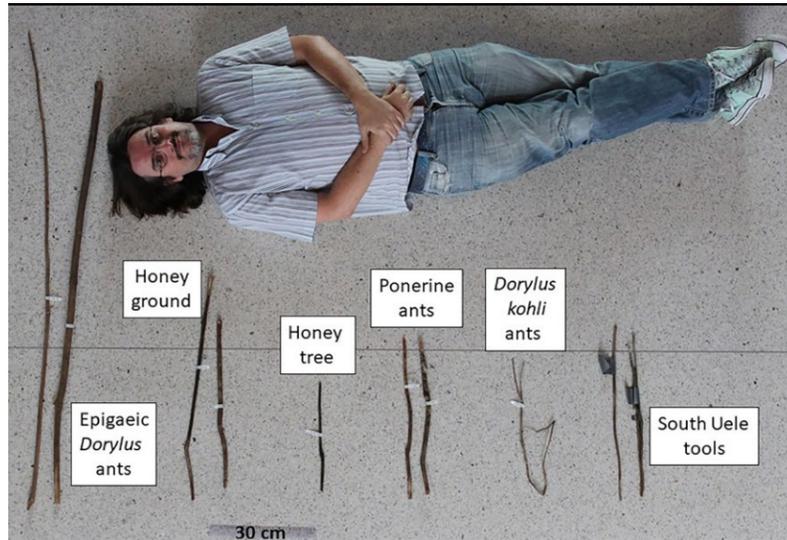
## SLEEPING ARRANGEMENTS

Unusual food choices were not the only aspect setting the Bili-Uéré chimpanzees apart from their conspecifics in other regions of Africa. These chimpanzees often find it more comfortable to sleep on the ground rather than curled up in the trees. They are very skilful at weaving saplings and other plants into an intricate structure to make a comfy bed for the night.

This seems to be a strange choice, as sleeping on the ground may make them more vulnerable to leopards and other predators, which abound in the savanna-woodland mosaic of Bili. Referring to an observation made by project worker Ligada Faustin of a chimpanzee munching on a leopard carcass, Cleve Hicks explained that “these chimpanzees may have turned the tables on leopards. This may explain why in this population, the apes appear to be unafraid of nesting on the ground. For the moment, though, these intriguing observations raise more questions than they provide answers.” Currently, Hicks is working with University



Illustration: art by C. Hicks; Photo credit: Ephrem Mpaaka



The chimpanzees used different sticks for catching various ant species and acquiring honey.

## We must protect these priceless chimpanzee traditions before they are wiped out by accelerating waves of 'development' unleashed by their estranged cousins, *Homo sapiens*.

of Warsaw PhD candidate Toni Romani to further investigate ground nesting in the Bili-Uéré chimpanzees, and in other populations of these great apes across a much larger area.

### NORTH VS SOUTH: DIFFERENCES AND SIMILARITIES

Despite the vast area inhabited by the Bili-Uéré chimpanzees, and the very different habitat types within it, their cultural habits were unexpectedly similar. They all make ground nests, dip for ants, pound open termite mounds and ignore *Macrotermes*. Hicks speculates that there has not yet been enough time for the populations north and south of the River Uele to differentiate their customs and traditions. Alternatively – or perhaps additionally – any cultural innovations invented by a particular subpopulation of chimpanzees may be quickly drowned out by migrations between surrounding communities, reinforcing conservative traditions. Northern DRC provides us with a fascinating laboratory in which we can document the spread of related traditions across a large intact population of our close cousins.

Despite the many similarities in the chimpanzees' behaviour on the two sides of the river, Hicks spotted a few curious differences. For example, chimpanzees on the north side seemed to enjoy rummaging for honey, and as mentioned before, they preyed upon driver ants using very long sticks. South of the Uele, however, food choices were slightly different. These chimpanzees had less of a taste for driver ants (which were abundant in both regions) and instead focused more on ponerine ants, which they caught with short sticks, and there were no signs of honey on the menu.

At this stage, Hicks can only speculate about the reason behind these different dietary choices. The team found a significant difference between the depths of driver ants' holes and those of other ants, which might explain the use of long sticks. Still, it does not explain why chimpanzees pick different ants on each side of the river, nor why other chimpanzee populations such as at Gombe or Taï use much shorter sticks for driver ants. It could be that a lack of salt in the north encourages the apes to look for 'salty' ants. Or perhaps

the absence of red colobus monkeys in the north – which are present in the south, and are a favourite prey item in all areas where the two species occur together – forces the chimpanzees to look for alternative sources of protein. This cannot be the whole story, though, as multiple chimpanzee groups in diverse habitats prey on red colobus and on driver ants. Hicks follows researcher Thibaud Gruber in proposing 'cultural override', which in humans can explain dietary differences between groups, as a potential explanation for the pattern.

### PROTECTING THE BILI-UÉRÉ CHIMPANZEES

For Cleve Hicks, Northern DRC offered the perfect chance to document the distribution of chimpanzee culture across a large area. He even refers to these shared behaviours as 'The Bili-Uéré Behavioral Realm'. The researcher says he is keen to protect and document these priceless chimpanzee traditions before it is too late and they are, like those of other chimpanzee populations across Africa, "fragmented and eventually wiped out by accelerating waves of 'development' unleashed by their estranged cousins, *Homo sapiens*. A stroke of luck has allowed this population to survive; it is up to us to ensure it does so into the future", said Hicks.

Worryingly, the team found extensive evidence of a massive and unregulated commerce of bushmeat, particularly to the south of the Uele River. Chimpanzee meat is a popular ingredient in soup in Buta and Aketi and is sold openly in city markets in this region. It seems that not even police officers and city officials are aware that chimpanzees are a protected species, and they are likely to own them as pets. Hicks stresses the urgent need to make a concerted effort to prevent further losses. This can only be achieved, he says, with formal protection for key chimpanzee populations and their habitats, accompanied by educational campaigns to inspire government officials to uphold the chimpanzees' protected status. The international community must also support the efforts already underway by Congolese to safeguard these amazing beings, which are an irreplaceable part of the DRC's natural heritage.



Photo Credit: Karsten Diekx

# Behind the Research

## Dr Cleve Hicks

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**TEDx Talk:** [www.youtube.com/watch?v=nt0YXZBvAZE&t=506s](http://www.youtube.com/watch?v=nt0YXZBvAZE&t=506s)  
**Mongabay interview:** <https://news.mongabay.com/2019/04/audio-tool-using-ground-nesting-chimp-culture-discovered-in-dr-congo/>

## Research Objectives

Cleve Hicks studies the material culture of the Eastern chimpanzees of Northern DR Congo.

## Detail

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### Bio

Cleve Hicks is a field primatologist who has studied a wide range of primates, from ring-tailed lemurs to rhesus monkeys to nonhuman great apes. For 20 years, he has studied chimpanzee behavioural diversity in Central African Republic, DR Congo and Uganda. Hicks has also authored a children's conservation book, "A Rhino to the Rescue: A Tale of Conservation and Adventure", part of the proceeds of which go to aid rhino conservation. More

information can be found here: <https://www.facebook.com/ARhinoToTheRescue>;  
[https://www.amazon.com/Rhino-Rescue-Tale-Conservation-Adventure/dp/0991357191/ref=asap\\_bc?ie=UTF8](https://www.amazon.com/Rhino-Rescue-Tale-Conservation-Adventure/dp/0991357191/ref=asap_bc?ie=UTF8)

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### Collaborators

- Ligada Faustin, Mbolie Cyprien, Jerzy Axer, Dorota Łagodzka, Marek Konarzewski, Joanna Pijanowska, Martyna Molak, Ilona Szewczyk, Steph Menken, Peter Roessingh, Christophe Boesch, Hjalmar Kuehl, Sandra Tranquilli, Genevieve Campbell, John Hart, Corneille Ewango, Jeroen Swinkels, Laura Darby, John Hart, Roger Mundry, Roger and Deborah Fouts, Paula Dieguez, Anne Laudisoit, Carel van Schaik, Thibaud Gruber, Cat Hobaiter, Sonia Uribe
- Dr Hicks is currently advising University of Warsaw PhD candidate Toni Romani in a study of ground nesting behaviour in East African chimpanzees. More about Romani's work can be found here: [www.researchgate.net/profile/Toni\\_Romani](http://www.researchgate.net/profile/Toni_Romani)

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## Personal Response

### How do you think different groups of chimpanzees develop different customs and traditions?

Studying the distribution of chimpanzee traditions across Northern DRC gives us a fascinating glimpse into the likely origins of our own dependence on material and social culture. The chimpanzees of Northern DRC appear to share a unique 'Behavioural Realm' which differentiates them from other populations. Given the rather recent emergence of their subspecies, *Pan troglodytes schweinfurthii*, we may be looking at a set of behaviours that have spread out over Northern DRC in recent evolutionary time, and given the relative behavioural conservatism of the species, this set of traditions has not had time to differentiate, despite the fact that the Bili-Uéré chimpanzees occupy notably divergent habitats.



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