

Secrets of early human ancestors could be unlocked by African rainforests

September 6 2018, by Eleanor Scerri



Credit: AI-generated image ([disclaimer](#))

Think of rainforests and the picture is inevitably one of a dark and forbidding realm where life is abundant, yet alarmingly cryptic. Rather than the sense of space offered by long, iconic grassland vistas, distance is compressed into tangled webs of foliage, veiling both predators and prey. Diffuse and difficult to access proteins, carbohydrates and fats

increase the chances of encountering an array of lurking dangers. For these reasons, it has long been thought that humans were only able to colonise rainforests in the last few thousand years, after the development of agriculture.

In fact, we still have no clear idea when humans first began to inhabit rainforests. But mounting evidence is deconstructing the idea that rainforests – that is, forests requiring between 2,500 and 4,500 mm of rain a year – were hostile "green deserts" to early hunter gatherers.

In South Asia, there is now compelling archaeological evidence that *Homo sapiens* rapidly adapted to life in rainforests. At Niah Cave in Borneo, toxic plants obtained from nearby [rainforest](#) habitats were being processed as far back as [45,000 years ago](#), soon after people were first documented in this region. In Sri Lanka, [there is evidence](#) for direct reliance on rainforest resources at least 36,000 years ago. And [a paper](#) published in *Nature* last year reported the presence of humans in a rainforest environment on Sumatra dating back to a staggering 70,000 years ago.

If early humans could adapt to the rainforests of South Asia, then perhaps they also did so much earlier in Africa at the inception of our species. While this is not a new suggestion, [we now know](#) that our species first arose in Africa more than 300,000 years ago, leaving plenty of time for our ancestors to adapt to varied habitats.



Credit: AI-generated image ([disclaimer](#))

But finding conclusive evidence for rainforest habitation is difficult. Rainforests are very challenging fieldwork environments, not least because the warm and wet conditions mean that very little of the archaeological record survives the test of time.

In addition, Africa's rainforest ecologies are fragile, sustained by annual levels of rainfall that are at the lowest limit of what is required to maintain a rainforest. This means that there were frequent episodes of rainforest fragmentation in prehistory, making it difficult to establish the [environmental context](#) of past human habitation in regions that are forested today. With the exception of a few dedicated individuals, Africa's rainforests have barely been explored for their potential role in [human evolution](#).

Early African rainforest dwellers?

Despite the many problems described above, there are tantalising suggestions that humans used and perhaps lived in African rainforests far before the development of agriculture some 8,000-9,000 years ago.



Exploring forests by the edges of the Gambia river system. Credit: Eleanor Scerri, Author provided

It is also becoming apparent that this line of research has growing implications for how we understand our evolutionary history. Rigorous ethnographic studies have demonstrated that the availability of wild plant

foods have been [considerably underestimated](#) in Africa's rainforests, and there is some [evidence](#) supporting the ancient exploitation of such resources.

An [ancient hominin tooth](#) from Central Africa indicates that our hominin ancestors were already living in mixed environments at the edges of forests around 2.5m years ago. Composite foraging tools [argued to be forest adapted](#) may have appeared as early as 265,000 years ago and have been found across vast regions of modern rainforest. And [new evidence](#) published this year shows that humans were exploiting mixed tropical forest/grassland environments in Kenya up to 78,000 years ago.

Later human fossils dating to around 22,000 years ago from the [Democratic Republic of Congo](#) and 12,000 years ago in [southern Nigeria](#) feature enough distinctive morphological features to suggest that the populations they belonged to did not often mix with others from elsewhere in Africa. Specifically, these fossils bear more physical similarities to people living between 100,000-300,000 years ago than their contemporaries. It's possible that they were separated because they had adapted to life in very different environments.

[My fieldwork](#) in tropical West Africa has also uncovered striking cultural similarities. Some groups living here up to 12,000 years ago were making stone tools that were more typical of people living in similarly earlier time periods. This is not akin to [findings from elsewhere](#) which emphasise the late presence of a single artefact form in an otherwise "advanced" tool kit. My findings from Senegal could easily be transplanted to a situation 50,000 or 100,000 years earlier, and they would not look out of place. Why were people here maintaining such ancient material cultural traditions when populations elsewhere had begun to experiment with agriculture? Did they choose to sustain strong cultural boundaries? Or were they cut off, either by distance or some other factor?



Exploring forests on the Senegalese-Guinean border for traces of ancient human habitation with the Senegal Prehistory Project in 2018. Credit: Eleanor Scerri, Author provided

Implications for human evolution

While we are still working to establish the environmental context of these sites, it seems plausible that regions of dense forest may have played an important role in separating – and hence diversifying – early *Homo sapiens* populations. Such regions represented discrete human habitats, heralding the beginnings of our adaptability or "[ecological modernity](#)" and adding to the gamut of processes driving the significant physical variation of early members of our species. Indeed, [such](#)

[processes of diversification](#) may even have been the cauldron of our biological plasticity and behavioural flexibility, as I argue in a recent paper.

The plot thickens further at this point. It seems that our species shared Africa with other, more genetically divergent hominins such as *Homo heidelbergensis*, *Homo naledi* and perhaps other as yet undiscovered species. There are even suggestions that there may have been [gene flow](#) between *Homo sapiens* and one or more such hominins. If proved, the shifting patchwork of Africa's diverse environments – including rainforests – may therefore also have played a role in facilitating the late persistence of such species and subsequent episodes of gene flow with *Homo sapiens*. It's possible that the last groups of species such as *Homo heidelbergensis* hid out in forests.

Given the extraordinary discoveries of the last decade, it is certainly wise to keep an open mind and shy away from overly dogmatic assertions about human evolution. This is particularly the case when so little is known about vast swathes of Africa, whose rainforest regions alone cover 2.2m square miles. The only inescapable fact is that there is a lot yet to be discovered.

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