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life in the great forest

The Congo Basin rainforest is a massive carbon sink, possibly storing more carbon than the Amazon or Indonesian rainforests. Our global climate depends on it. It stretches across a vast swathe of Central Africa, where it is difficult to protect. Its importance is often overlooked, in part because it is little visited. To learn more about life in the great forest, we ventured to a research station deep in remote southern Cameroon.

BY **VERONICA TREMBLAY**

A quiet section of the camp is reserved for researchers. We pitch our tents on covered platforms raised several inches above the damp earth. Our Baka guides camp nearby, next to the ecoguards, who are dressed in dark green uniforms and carry rifles. Every night, I hear their footsteps as they patrol the forest paths. It's the dry season, so the first night in my tent I leave off the rainfly. I wake up in the chilly dark, surprised to feel pre-dawn dew dripping onto my sleeping bag. Lesson learned: the dry season is still quite wet.

Though Bouamir Research Station has wireless internet capability, it drains the camp's limited supply of solar-powered electricity. So instead of checking my social media updates, I mark the time by the call of the great blue turaco. A curious putty-nosed monkey swings across the treetops during late afternoon to check out one of our group's presentations, and chatters in short syllables that punctuate the constant shrill of insects.

There is no running water, but rather a cool, clear stream where I am careful not to disturb the crawfish or rust-coloured sediment when I fill my rubber bucket for bathing. Butterflies of all colours flock to the water in swarms during afternoon, and friendly (or at least unaggressive) bees hum around the wet areas of camp.

Every day, I wake up just before sunrise to stagger into breakfast. Those of us from warm homes are bundled in hoodies and scarves against the grey morning air, and tightly

grasp our warm mugs—coffee for the Americans and tea for the Cameroonians, who don't drink coffee. As we leave camp for our daily hike, the mist dissipates to reveal a bright blue sky through gaps in the thick canopy. We trade the humid air for moist sweat as the sun climbs higher.

By mid-morning, we tromp through the footprints of red forest hogs and elephants in the dark brown mud of the swamp to reach the grassy open of a 'rocher', pronounced 'ro-shay' — a broad inselberg of ancient metamorphic schist growing out of the jungle. The weathered rock is being slowly overtaken in

many places by grey lichen, black moss and hardy straw-yellow grasses. A clump of trees sprouting from the top of the rocher is draped with light green webs that look and feel like Spanish moss, a sign of healthy primary forest. We stride across the sunny plateau until we reach this crown of trees and can see the rest of the forest in front of us. Biting flies hover around our bodies and I am grateful for the net around my

face. Below, forest buffalo graze on dry grass and eye us with suspicion before deciding to flee.

Unlike the gorillas of Rwanda and Uganda, the animals of the Dja Faunal Reserve are not habituated to humans. Kamta Tchoffo Roméo Omer is the manager of Bouamir Research Station. One morning, he teaches our group mist netting — how to set up a mesh net along a transect with tall sticks, like a very fine volleyball net, to capture birds for population counts and diversity studies. We catch two →

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olive sunbirds and a Xavier's greenbul. Two of the three birds are wearing research tags already. Kamta says he also demonstrated mist netting to the US Ambassador to Cameroon. "You taught the Ambassador to mist net?" I gasp. Setting up the net is a slow process, and detangling birds without injuring their delicate limbs is a painstaking task. Kamta laughs: "I set it up first. I showed him the birds."

He reminds me how we saw no duikers in person but, in just two days, we caught several of the small antelope in our camera traps. Besides the animals being shy, Kamta notes, "the forest does not help us."

Elephants, gorillas, chimpanzees and whatever else lives hidden behind the glossy leaves scatter at the sound of our footsteps, and most signs we see of wildlife are secondhand and would be missed without the discerning eyes of our Baka guides. Their forest expertise reveals the footprints — and dung — of forest buffalo, three species of duiker, African forest elephants, mongoose, giant pangolins and red river hogs. Often, we hear the tell-tale swoosh of a black-casqued hornbill's wings or the call of an African grey parrot. In our camera traps, we catch video of little deer-like duikers, a spotted genet, red river hogs and a red-tailed mustached guenon.

We also see feeding signs. Elephants strip off the bark of a tree trunk with their tusks, leaving long scratches across bare wood. Green stalks are chewed up and thrown from the canopy by chimpanzees, where we find them discarded. Our guide reads the signs of a fight between an eagle and mongoose in feathers and fur. And we learn to identify what fed on a termite tower — was it broken in half by gorillas or gored by giant pangolins?

Poachers generally avoid the areas frequented by researchers, but we saw an old campfire where several had sought shelter from rain under a large colony of grey-necked rockfowl (*Picathartes oreas*). These rockfowl live in dozens of orange-brown mud cups plastered on a giant, curved rock face, like a large boulder-hotel. From a distance, the nests look like homes for strange, rock-dwelling termites, or maybe mud dauber wasps. On closer inspection, some of the mud appears fresher and brighter, and some older and more grey, because the rockfowl repair and reuse these same nests each season rather than building new ones. Unfortunately, these birds are very sensitive to disturbances from humans. Trespassing poachers are a large threat.

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Far left, top to bottom:

The canopy at Bouamir, with a rocher (rocky inselberg) rising out of the forest; a chimp caught on a camera trap; tagging a Xavier's greenbul caught in the mist netting

Left, top to bottom:

The Baka guides help to explain damage to the trees — including elephants stripping bark — fostering a better understanding of wildlife activity; 70 per cent of Africa's plant species are found in the Congo Basin — of the 11,000 species found in Congo, 1100 are found nowhere else

Providing services that support conservation research and sustainable ecotourism—such as carrying supplies, cooking and acting as guides—is an important element of the local economy in the Congo Basin rainforest, with much room for growth. The increasing presence of researchers and ecotourists discourages illegal activity, such as logging and poaching, while increasing the economic value of wildlife and habitat conservation for the local communities.

Tom Smith, director of the Center for Tropical Research at UCLA and co-executive director of the Congo Basin Institute (CBI), is trying to create more research stations like the one I visited in the Dja. "It provides boots on the ground — protecting biodiversity — and economic creation," he explains.

Our guide, Bambo Mempong Samuel, stops us along the jungle path. Samuel is one of several Baka who work for CBI as guides, sharing their extensive knowledge of the forest with researchers from around the world. Samuel motions with his machete towards tall stalks like limp, saw-toothed bamboo, and speaks in French. One of my Cameroonian colleagues translates: "This is rattan. It is important for building homes and furniture. The Baka also use it to make the structure of packs to carry things, but not the straps." Then, our guide hues off a metre-long section with his machete. He shaves off the spikey bark and chops one end into a sharp point. "They use this as medicine for the eyes — it instantly clears the eyes from blood vision; it brings an insect or speck out of the eye." Samuel shows us a thin, watery liquid dripping out. "Like eyedrops," my colleague elaborates. All of us watch, rapt, as our guide demonstrates the technique — lifting the stalk high over his head, he drips the liquid from the sharpened tip into one of his eyes, then the other. "First the healthy eye and then the infected eye, so the irritation doesn't spread." My colleague pauses, then remarks: "I've never seen this before."

Indigenous people know better than anyone else the value of what lives in their forest. I learn that the sticks of bitter kola (*Garcinia kola*) can be used for cleaning teeth, and its roots for stomach ailments. And African oil bean (*Pentaclethra macrophylla*) can treat a snakebite, instructs Alaman Gabriel, called Sikiro, another Baka guide. In the tree, empty pods hang in bunches that look like burnished flowers spreading their

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petals wide. Thick and hard as wood, they're as long as my forearm. The pods are used as fire fuel. The beans themselves are glossy brown and slightly oblong disks, as though they were designed to nestle easily into the palm of a hand. They are fermented and eaten in West Africa, and also used in cultural dances in Cameroon. We only find one among the detritus. Chew the bean and spit the bean-and-saliva paste into the snakebite wound, Sikiro says. Someone picks it up and saves it in their pack, just in case.

Further down the path, Sikiro makes a small cut with his machete into the bark of a *Tabernaemontana crassa* tree. White latex oozes from the gash in a bright white line. It feels tacky between my fingers, like Elmer's glue. He explains that it can be used to heal a machete wound: apply the latex to the wound, tie some moss over it like a bandage and leave it in place for two days.

The Baka and other forest-dwelling communities have been part of this ecosystem for at least 25,000 years. In decades past, they have been forced out of the forest in the name of conserving the Congo Basin rainforest wildlife. That strategy is shortsighted. Besides being inhumane, it also hurts conservation goals in two ways. First, the local people lose both their incentive and their ability to preserve the forest for future generations. Second, their vast knowledge, which has been acquired over thousands of years of living and breathing in the forest, is lost. Conservation planning that encourages the participation of and listens to the voices of indigenous people like the Baka is more sustainable and better informed. Local populations are allies, not enemies, of conservation.

All the life and habitats in the Congo Basin rainforest ecosystem are intertwined in a delicate balance, from the largest forest elephants down to the smallest honeybees. Many plants cannot regenerate without the assistance of animals. An elephant must eat the seed of the great moabi tree (*Baillonella toxisperma*) for it to germinate and grow; the new moabi tree cannot grow from a seed in the shadow of its mother. A 2015 study published in the *Journal of Tropical Ecology* found that one group of gorillas in the Dja dispersed the seeds of fifty-eight different plant species. Without these seed dispersers, many plant species would struggle to reproduce. That crisis would cascade down to animals that



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Far left, top to bottom:

Forest buffalo in the rocher near Bouamir; orb-weaver spider; the research centre base after an evening by the fire

Left, top: Forests in Central Africa tend to have taller trees than those in the Amazon and Borneo — large herbivores keep the density of small trees low, reducing competition. These old-growth forests store huge volumes of carbon, serving as an important buffer against climate change

Left, bottom: The Baka people, resident here for at least 25,000 years, are critical aids in understanding the workings of the forest and its plantlife

depend on each of these plants for food or shelter.

John Francis, retired Vice President for Research, Conservation, and Exploration at the National Geographic Society and member of the external advisory board for CBI, flew into Bouamir in 2017 by helicopter. From the air, he was able to see the damage to local waterways caused by Mékin hydroelectric dam. All the animals and plants in that habitat must change their behaviour to accommodate for that damage. If a keystone species — one that is essential for other species' survival — cannot adapt quickly enough to their new normal, then the entire ecosystem will suffer.

Hornbills are considered a keystone species for many trees in the rainforest: according to Smith: "Thirty-five per cent of the tree species [in the Dja] are dispersed by hornbills alone." They are large birds, and their calls echo like a series of honking guffaws across the forest. As the populations of elephants and primates dwindle, these birds will become even more important. Luckily, none of the hornbill species we studied in the Dja are considered endangered by the IUCN, but all are either decreasing or unknown in number.

This region has four seasons: two wet and two dry, one long and one short of each. My colleague asks some of the Baka about climate change. They report that the heavy rains of the wet season are continuing deep into the dry season. Their plantain harvests are smaller, and some of the fruits are less sweet. They blame deforestation for the changes in rainfall.

Smith has been tracking weather at Bouamir since 1993, and he confirms that precipitation has become more variable. He explains: "That becomes a problem for animals who time their reproduction to the rains, like birds."

Tropical plants like bird-of-paradise (*Strelitzia*), which is pollinated by sunbirds, seem to prefer the sunlight of the transition zone. Walking into the Dja, the narrow dirt path is swarming with butterflies, and the 'walls' of green crops are adorned with bright wildflowers. In contrast, the remote forest resembles the green-and-brown forests of my childhood in the southeastern US, with damp logs to crawl over and tall, dark trees above. I ask one of our guides what a loud sound is. "Cicadas," he answers through a translator. It could be just another summer's day in the Carolinas — until we stop to record the GPS location of elephant scat across our trail.





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HOPE TO SEE

1 WESTERN LOWLAND GORILLA (*Gorilla gorilla*):

Unlike chimpanzees, western lowland gorillas travel in small groups of only about five individuals led by a silverback male. When he finds a tasty meal, the females must wait and subtly beg for him to share. Gorillas make a new nest every night by pushing down the forest undergrowth and leaves in a cushiony circle; the next day, they move on to a different site. The western lowland gorilla is critically endangered due to deforestation, poaching for bushmeat and diseases such as ebola and malaria.

2 GREAT BLUE TURACO (*Corythaeola cristata*):

The great blue turaco does not fly well. This common, large bird grows to be 75cm tall and weigh around 1kg. True to its name, it is mostly bright cerulean, with a yellow beak, dark plumage over its crown and blue-and-black tail feathers. Instead of flying, it prefers to climb up, glide down, or hop from branch to branch, making the treetops bounce as it travels across the canopy. Listen for the call of the great blue turaco around sunrise and sunset.

3 JAMESON'S MAMBA (*Dendroaspis jamesoni*):

Jameson's mamba, one of three types of green mamba, is a venomous tree-dwelling snake in the Congo Basin rainforest. It can reach almost two metres in length. To see this well-camouflaged animal, look up: it chases small animals like birds and rodents through the trees. While the green mamba's powerful venom can kill a human adult within one to two hours, it is not aggressive and bites are rare.



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About Bouamir

Dja Faunal Reserve is a UNESCO Biosphere Reserve in southern Cameroon. Almost completely surrounded by the Dja River, Dja covers 526,000 hectares and is one of IUCN's 15 critical zones for the conservation of central African biodiversity. The Bouamir Research Station was established by the UCLA's Congo Basin Institute in 1993 but was shuttered until recently. It's a 30km hike from the nearest town of Somalomo, itself a long drive from Yaounde. Bouamir is available to host short-, medium-and long-term researchers. The author visited as part of a group from Johns Hopkins University.

For more: www.cbi.ucla.edu



Around sunset, the bugs come out to feast. I swat at the tsetse flies and mosquitoes that manage to bite even the pad of my left thumb, but the scarier creepy-crawlies are not interested in me. A mousey brown tarantula the size of my hand joins us for dinner one evening. It stays still and we let it be. I become convinced that most of the forest's wildlife is concentrated on the way to or at the wooden structure used for the ladies' toilet. My headlamp illuminates dozens of spiders that hunt along the trail. As I stumble over roots and arachnids in the dark, I hear the cackle of a small monkey — could it be an agile mangabey? My ear isn't practiced enough to tell. A tailless whip scorpion hunts every night by the toilet paper roll. We assume it's female, and I name her Wilhelmina.

After dinner, the villagers who work at the camp stack long, narrow logs to burn side-by-side, like a bundle. Stumps are arranged in a circle for us around the fire. A full moon outshines Sirius, Orion and — barely visible just around sunset — golden Venus. We push the ends of the logs towards the centre as they burn before we move off, one by one, to our tents. On the first or second night of camping, I go to bed early, but an unfamiliar sound spooks me. The primitive comfort of the dancing flame slows my heartbeat and restores my courage. After a few minutes, I feel brave enough to return to the darkness.

Sometime after midnight on our second to last night, I am jolted awake by the sound of chimpanzees hooting and shrieking to each other across the rainforest canopy. The cacophony comes and goes in waves for hours. Though they sound close, the chimpanzees are high up and far away, invisible and unreachable both to me and, I pray, to any predators — human or nonhuman — who might wander the forest.

Eric Tah is the deputy director of the Last Great Ape (LAGA) organisation, which fights corruption and wildlife trafficking in Cameroon. Tah encourages everyone to loudly voice their support for international conservation initiatives. Rather than send donations and quietly move on, he says: "There are simple things that people can do besides giving money — we are talking about citizen activism." John Francis of the CBI also highlights global citizenship as a major gain from ecotourism. In the Dja, he notes the potential of homestay visits for backpackers: "It is very low impact, low footprint, but high connectivity." These international visitors become ambassadors for isolated communities and help them join a social network of conservation-minded fellowship.

The Congo Basin rainforest of Cameroon is certainly a destination for local tourism and adventurous backpackers. However, Francis cautions that the infrastructure and environmental protections are not yet in place for large-scale tourism. Francis notes there is value in the "beauty of nature in and of itself, independent of any other material or financial benefit that it might confer."

But this 'spiritual value' is hard to measure and difficult for local communities to appreciate when they are starving. Therefore, all stakeholders, international and local, need to feel that conservation is a good economic investment — that the forests and animals have more value living than cut down and sold. Cameroon has the chance now to invest in its future by establishing good tourism development practices. 🌿