



a blizzard of **BATS**

'Did you say bats? You mean people actually pay good money to look at bats?'

When **Stephen Cunliffe** informed his family and friends that he was heading to Zambia's Central Province to spend November in the company of eight million straw-coloured fruit bats, the general consensus was that he was certifiably crazy. But what he discovered was one of Africa's most awe-inspiring and least known wildlife spectacles. ▶

TEXT & PHOTOGRAPHS BY STEPHEN CUNLIFFE



ABOVE Seasoned bat research assistant Kenneth 'Batman' Changwe.

TOP Squadrons of straw-coloured fruit bats return to their Kasanka roost shortly after sunrise.

PREVIOUS PAGE At dusk, millions of fruit bats take to the sky, adding an extraordinary dimension to an African sunset.

Each year, beginning in late October, squadrons of straw-coloured fruit bats begin to converge on a small patch of evergreen *mushitu* swamp forest in Zambia's Kasanka National Park. As they continue their relentless descent, their numbers swell until, by the third week in November, a mind-blowing eight million of these

acrobatic flying mammals have settled down to roost.

The scale of this bat 'blizzard' is difficult to comprehend. 'You are observing some 3 500 tonnes of roosting bats concentrated in this tiny eight-hectare piece of swamp forest,' my guide announced. Les Reynolds was enjoying his fourth 'bat season' as a volunteer at Kasanka and he oozed facts and figures in a nonchalant manner. 'You are in the midst of what is believed to be the greatest concentration of mammalian biomass to be found anywhere in Africa, or even the world,' he elaborated.

Perched in a recently constructed hide 21 metres above the forest floor, we had the ideal vantage point from which to enjoy the spectacle. At around 17h50 the bats had begun to take to the skies en masse, and for the next half-hour a seemingly endless procession of them obscured the forest below. We sat in awed silence as they swirled around and above us, their sheer number and enormous wingspans darkening the sky. Then they disappeared into the twilight to feed.

Africa's straw-coloured fruit bats *Eidolon helvum* are the second-largest bat species on the continent and their

metre-plus wingspan is the longest of all their relatives here. Unlike many other bats, which use echolocation to forage and avoid obstacles, this species relies only on its senses, notably sight. Despite this, the bats never collide while manoeuvring into and out of the crowded roost sites, or when making their typical, shockingly ungraceful landings.

I became intoxicated with the anticipation of experiencing the extravaganza. Thankfully it is not an 'evenings-only' performance, and we rose at 03h30 every day to take our places in the forest before dawn. When Reynolds was unavailable, I was entrusted to the capable hands of Kenneth 'Batman' Changwe, and each morning, with blazing torches strapped to our heads above

sleep-clouded eyes, we stumbled and squelched along waterlogged paths – this is a swamp forest after all – to take our positions before the stars began to fade and the well-fed bats started to return. The breaking dawn would illuminate the advance squadrons as they reappeared on the horizon, and within minutes the sky would be obscured by gigantic black clouds of beating wings.

With 14 years of service in Kasanka, Changwe is an experienced bat research assistant. 'Did you know that bats have the ability to delay implantation of the embryo in the womb?' he asked me. 'This enables them to synchronise their reproductive cycles and ensures that the birthing periods coincide with maximal food availability. Keep a careful eye out for mothers with their young. They fly with their offspring clinging to their underside, which is quite a feat when you consider that the weight of a newborn bat is 20 per cent that of its mother!' (Adults weigh in the region of 350 grams.)

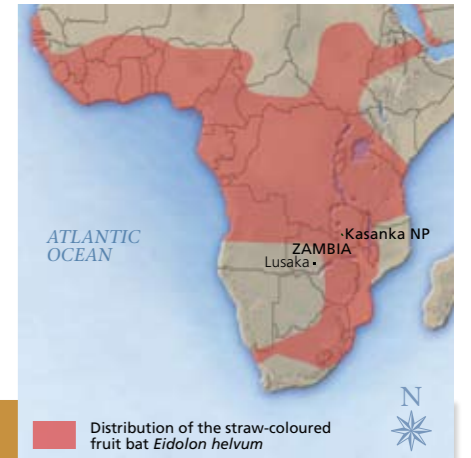
I tried to scrutinise the bats as they whizzed by, but their speed and erratic zigzag path made it a difficult and frustrating exercise. After a few hours I admitted defeat, although we were rewarded with an excellent sighting of a martial eagle swooping down to take an unfortunate individual in mid-air.

'Raptors are not the only predators that bats need to be wary of,' Changwe

said. 'Crocodiles, monitor lizards, pythons and even the occasional serval or leopard are known to scour the forest floor in search of an easy meal. Often the sheer weight of the roosting colony will pull a branch off a swamp fig, taking with it a few unlucky bats.'

The reason Kasanka plays host to what is the largest known population of fruit bats in the world is primarily its abundance of wild fruiting trees, especially the red-milkwood, waterberry and wild-loquat. A bonanza of fruit occurs with the onset of the rainy season in November and the bats time their arrival to take advantage of it. Thought to consume up to twice their body weight between sunset and sunrise ▶

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The Kasanka Trust

Kasanka is the local word for 'the place where people come to harvest'. It's ironic that this bountiful advert has resulted in the overharvesting, exploitation and degradation of the area by the region's growing population. Despite Kasanka being formally declared a national park in 1972, there was little tangible evidence of protection. The Zambian government lacked the resources to manage the park effectively and was unable to control the unsustainable and illegal practices, including poaching, by local people within its boundaries. It was not until the mid-1980s and the arrival of David Lloyd, a former district officer, that the sanctuary was given a chance of survival. Soon, Kasanka National Park became the first privately managed national park in Zambia.

The Kasanka Trust was registered as a wildlife charity in 1987 with a mandate to safeguard the park's biodiversity. Emphasis was placed on protecting its wetlands and critically important forest, promoting birding and securing the bats' future. These early conservation efforts encouraged the government to sign an agreement that handed exclusive park management and infrastructural development rights to the Kasanka Trust, and also recognised the vital importance of co-operation with the local community.

By employing local people, promoting education initiatives and supporting rural development schemes, the Trust continues to enhance the livelihood of people living near the park.

To make Kasanka self-sustaining, infrastructure and visitor facilities are being developed. Currently, only about half of the management costs are covered by tourism revenue (just 1 291 tourists visited in 2008), and the park's funding situation remains precarious.

The Trust and its scout force have tackled the poaching problems efficiently. In 2008, 2 629 snares were removed and 38 poachers were apprehended. Scout patrols and community education are bringing the problem under control but it is a long and arduous process. The only long-term solution is to provide the park's surrounding communities with alternative employment opportunities to divert their attention away from poaching.

However, the greatest threat to the bats' survival in Kasanka remains the degradation of the *mushitu* swamp forest caused by the bats themselves and by the fires set by poachers.

For further information about the Kasanka Trust, its development work or ongoing projects, go to www.kasanka.com

OPPOSITE The straw-coloured fruit bat, with its metre-plus wingspan, is the second-largest bat species in Africa.

RIGHT PhD researcher Alison Peel takes measurements and collects DNA samples from a live specimen as guide Les Reynolds restrains the bat.

A wildlife bounty

At 420 square kilometres, Kasanka National Park may be a tiny reserve by African standards, but its ecosystems are diverse and comprise grassy plains, rivers, lakes, lagoons, swamps, miombo woodland and evergreen forest. This varied habitat accounts for the sanctuary's remarkable 439 recorded bird species, which prompted well-known ornithologist Ian Sinclair to comment in the guest book: 'Kasanka has undoubtedly some of Africa's finest birding.' Here you'll find African finfoot, narina trogon, Ross's and Schalow's turacos and Bocage's akalat.

Kasanka also lays claim to the greatest sitatunga-viewing opportunities in Africa. Fibwe Tree Hide, perched high in a red mahogany overlooking the Kapabi Swamp, is the ideal vantage point from which to spot these elusive antelopes. My most successful morning there revealed 11 sitatunga, but the record number sighted in a single day is 94. Other wildlife species include elephant, Lichtenstein's hartebeest, puku (below), the rare blue monkey and crocodile.



(accounting for an estimated 5 000 tonnes of fruit per night at the peak of the migration), the bats return the favour by spreading and depositing seeds. At the same time, they leave huge amounts of fertiliser, which is crucial to the propagation and regeneration of the trees. Bats are purported to be responsible for at least 60 per cent of the seed dispersal of Africa's rainforest trees, so their role in the health of the continent's ecosystems is critical. And as they have been known to cover up to 118 kilometres in a single night in search of the richest feeding areas, the Kasanka colony could play a significant ecological and economic role over a sizeable portion of sub-Saharan Africa.

At Kasanka, the feeding frenzy is over after just two months; once the bats have exhausted the fruit supply, they head off in a north-westerly direction, lured, it is thought, by richer pickings in other areas.

Research into the park's bats is wide-ranging. Ecologists explore their crucial role in ecosystems, while veterinarians and other medical

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professionals investigate the diseases they may carry. However, all are faced with the challenge of studying a creature whose activities are largely nocturnal and capacity for flight is remarkable.

Professor Paul Racey from Aberdeen University in the UK has been involved in research at Kasanka for years, and he and his students have also looked at a wide range of bat species occurring in the park. For them, the straw-coloured fruit bat and its annual migration is of particular interest.

The straw-coloured is the most numerous of Africa's fruit bats and has been found in massive roosts of squabbling individuals across the continent, from Mauritania in the west to Somalia in the east, and southwards to South Africa. How far and where it travels has long been the subject of debate.

In an effort to shed some light on the routes taken by the bats, researchers Heidi Richter and Allyson Walsh developed a satellite transmitter weighing a mere 12 grams that can be carried by the males. The devices have been attached to four Kasanka bats, with

startling results. One individual migrated more than 2 500 kilometres into the Democratic Republic of Congo (DRC) before the signal was lost. Another, after leaving Kasanka, covered an astounding 370 kilometres in a single night. The greatest cumulative distance travelled by a collared bat is 2 518 kilometres in 149 days before the signal was lost over northern DRC. When one considers that the bats usually return to Kasanka, the distances seem unbelievable.

PhD researcher Alison Peel is studying the straw-coloured fruit bat from a different perspective. She compares the DNA of the species across Africa to estimate the extent to which members of different colonies mate with each other. Her results indicate that gene flow has occurred on a continental scale over a long period. Bats all the way from Ghana to Zambia have identical DNA sequences. Peel's research also examines the diseases carried by straw-coloured fruit bats and is furthering recent studies in Ghana that demonstrate the presence of viruses in fruit bats never before reported in mainland Africa. ■

For further information on Alison Peel's research on bats or to report Eidolon roosting sites, go to www.zsl.org/alisonpeel

Africa Geographic digimag issue 5 contains fascinating footage of the complex manoeuvres performed by bats when they land. Go to www.africageographicdigital.com to see more.

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Getting there Private charters fly directly to Kasanka and can be arranged from anywhere in Zambia. Good tarred roads link Lusaka to Kasanka and self-drive visitors should reach the entrance gate in five to six hours. There is no fuel available in the park and you need to fill up at the service station in Serenje.

When to go It depends on your primary reason for visiting – birding and fishing are best during the wet season (November to April), when migrant bird species have arrived and the fish are biting. Walking and exploring is easiest during the cooler dry season (June to October). However, nothing can rival the wonder of watching Kasanka's bats take to the sky from late October to early January.

Where to stay The Kasanka Trust runs two fully equipped camps. Wasa Camp overlooks a lagoon frequented by puku, sitatunga and hippos and is conveniently located for visitors wishing to view the bats and make use of the hide at Fibwe, a 15-minute drive or two-hour walk away.

Luwombwa Camp has been recently upgraded and has a prime location on the edge of the Luwombwa River overlooking a grassy floodplain favoured by elephants. There are also three campsites, one of which – at Fibwe – is just a stone's throw from the sitatunga hide

and within easy walking distance of the bats' roost.

For further advice and visitor information, go to www.kasanka.com or www.zambiatourism.com/travel/nationalparks/kasanka.htm

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