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8,000,000 Fruit Bats
Africaâ€™s Best-kept Wildlife Secret
Paul Racey

One of the great wildlife wonders of the world unfolds in southern Africa near the end of each year. As the sun sets, up to eight million fruit bats unfurl wings that average three feet (a meter) across, release their grip on the sagging branches of their tree roosts and take to the sky. A few lead the way, soaring off gracefully on those big wings. Then more follow, and more still, until the sky is filled with bats flying off in every direction. Three thousand metric tons (6.6 million pounds) of mammals in flight create an amazing and beautiful spectacle.

The straw-colored fruit bats (*Eidolon helvum*) begin to arrive in Zambia's Kasanka National Park in late October. Their numbers grow rapidly until, by the last week of November, up to eight million are packed into less than 2 1/2 acres (one hectare) of evergreen swamp forest (known locally as *mushito*).

Fruit bats often space themselves about a wingspread apart while roosting, but not the Kasanka bats. Their roosting behavior is so distinctive that from a distance they look like swarms of honeybees, their densely packed brown bodies hanging from every bole and branch of every tree and even from one another.

So heavy are these dense clusters that branches often break, dropping bats to the ground. Some are injured in the fall and promptly eaten by crocodiles, monitor lizards, black mambas, pythons, civet cats and the occasional leopard.

Bat numbers peak at Kasanka near the end of November, then begin falling rapidly. After a few weeks, by late December or early January, the patch of forest is empty of bats. Why do so many straw-colored fruit bats converge on such a small area year after year?

Eidolon, a migratory bat that is one of the most important players in regenerating Africa's forests, forms large colonies in widely scattered locations across the central belt of Africa. Major roost sites are known at Jinja and Kampala in Uganda; Ile-Ife and Lagos in Nigeria; Accra and Wli Falls in Ghana; Abidjan in Ivory Coast; and Dar-es-Salaam in Tanzania. The number of bats in these large, vulnerable roosts is thought to have declined in recent decades. The primary threats include human hunting for food and the loss of habitat to expanding agriculture.

An *Eidolon* colony in western Kenya, for example, has been looked after by a local farmer on whose land they roost. His sons want to clear the roosting trees for farming, but Bat Conser-vation Inter-na-tional, Fauna and Flora International and IUCN – The World Con-ser-vation Union are working with local bat biologist Paul Webala to prevent this.

Straw-colored fruit bats often roost in tall trees in busy villages and towns and on lake or river islands. The colonies typically are huge, conspicuous – and ex-tremely vulnerable to human persecution In parts of Africa, particularly West Africa, they are hunted for food.

These are migratory bats that seasonally move 600 miles (1,000 kilometers) or more up and down this central belt. They have even been reported 120 miles (200 kilometers) out to sea.

The major roosts favored by colonies of straw-colored fruit bats have been used for centuries, raising the possibility that the bats living in them may have become inbred. So it occurred to me that a possible reason that the bats converge on Kasanka might be to mate with members of different colonies.

That idea bit the dust, however, as soon as we examined a few of the Kasanka bats.

The females were either pregnant, with a fetus in mid to late pregnancy, or were carrying newborn pups. Pregnant females apparently travel to Kasanka, probably migrating over great distances, because the area's abundant fruits support the increased energy demands of pregnancy and lactation. This underlines the importance of the forests of Kasanka as a food resource for the bats.

I have been in many tropical forests but never one with such a synchronized abundance of fruits, the main ones being wild loquat (*Uapaca kirkiana*), water berry (*Syzigium cordatum*) and red milkwood (*Mimusops zeyheri*).

The trees are laden with these fruits. While returning to Kasanka's Wasa tourist camp after watching the spectacular dusk dispersal, we often saw bats feeding in the trees, illuminated in the headlights of our vehicle. At the roost, many feces were purple, indicating that the bats had been eating the purple-skinned water berry. All these fruits are very sweet and are frequently eaten by the local people.

Estimating the number of fruit bats roosting in trees or dispersing at dusk is difficult, and large errors are inevitable. Nonetheless, the millions of bats at Kasanka represent the largest aggregation of mammals in Africa. With up to 3,300 tons (3,000 metric tons) of fruit bat in 21?2 acres (one hectare) of forest, this is the greatest concentration of mammalian biomass ever recorded.

It is also one of Africa's best-kept secrets. Now that the Kasanka National Park has inter-na-tionally competitive tourist ac-commodations at its two camps, however, that secret is about to be shared with many more people around the world. We hope the attention and ecotourist dollars will help protect these bats.

Conserving straw-colored fruit bats is crucial to the health of vast stretches of African forests and to the continent's timber industry. BCI biologist Dan Taylor, for example, determined that this far-ranging species accounts for more than 98 percent of seed dispersal for the iroko tree – one of West Africa's most important and threatened commercial hardwoods (*BATS*, Fall 2000).

Canadian researcher Donald Thomas calls fruit bats "the farmers of the tropics" because they are by far the most effective spreaders of viable seeds for many important tropical trees.

Not only do straw-colored fruit bats sow seeds during their long migrations, but they also venture 40 miles (65 kilometers) or more from their roosts on nightly foraging flights, scattering seeds in their feces along the way.

And they eat enormous quantities of seed-rich fruit: Thomas found that a straw-colored fruit bat can eat nearly twice its weight each night. The Kasanka bats thus consume nearly 6,000 tons of fruit per night – imagine their impact on the growth of forests!

We have not determined where the Kasanka bats come from, but they seem to represent several widely scattered colonies. Reproduction in each colony is believed to be highly synchronized, and since the Kasanka females we examined were in various stages of pregnancy or had already given birth, they were unlikely to have come from the same colony.

Kasanka is not only a special place because of its fruit bats. It is the first privately managed national park in Zambia. Although it was declared a national park in 1972, the area was not managed, poaching was rife and it was in danger of losing its national park status.

When former British colonial officer David Lloyd visited the park in 1985, he saw few game animals, but heard gunshots, suggesting that poachers were still active and thus there must still be antelope to shoot. He asked the Zambian government if he could manage the park, and a ten-year management agreement was signed in 1990. It was recently renewed. Lloyd established anti-poaching patrols and the number of game animals increased, particularly puku and the extraordinary swamp antelope, the sitatunga.

Today, Kasanka is managed by a not-for-profit organization, The Kasanka Trust, based in Lusaka with a parallel organization in London that helps raise money for major projects. Tourist accommodations have been built at two camps in Kasanka: Wasa, which overlooks a shallow lake that attracts hippos and many bird species, and Luwombwa, on a bank of a river that offers fishing for largemouth bream and tigerfish.

As tourism grows, officials hope Kasanka will become financially self-sufficient. And as attention focuses on this magnificent spectacle, the future of millions of straw-colored fruit bats at Kasanka – and perhaps elsewhere throughout their range – might finally become more secure.

PAUL RACEY is Regius Professor of Natural History at the University of Aberdeen, Scotland, and a member of BCIâ€™s Scientific Advisory Board. To learn more about Kasanka National Park, visit their website at www.kasanka.com.