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### The Rediscovery of Bulmer's Fruit Bat

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**In a remote part of New Guinea, Bulmer's fruit bat has survived against the odds; once thought to be long extinct, it is now making a slow recovery...**

by Timothy F. Flannery

Only rarely is an animal species found that was thought to have become extinct long ago. In recent years a fish, a peccary, and an Australian pygmy possum have been found after originally having been known only from fossils. The most recent such discovery occurred in Papua New Guinea (PNG) in 1992.

The species, known as Bulmer's fruit bat (*Aproteles bulmerae*), is a large member of the flying fox family. It remained unknown until the early 1970s, when an archeologist excavated sediments from a cave in Chimbu Province. The cave was high in the mountains, and New Guineans had used it for over 12,000 years as a shelter and a place to cook their meals. They had thrown their dinner scraps onto the cave floor, and the bones became fossilized.

James Menzies, of the University of PNG, examined the bones and quickly realized that many of them were from a large and previously unknown species of fruit bat. One of the most curious features of the fossils was that the jaws lacked any sign of incisor teeth. This unusual feature makes the species easily recognizable from jaw bones alone, so Menzies called his new discovery *Aproteles* (meaning in Greek, incomplete at the front) and *bulmerae* for Susan Bulmer who excavated the bones.

Menzies was intrigued with the distribution of the bones in the deposit; the bones of his new species were abundant in levels dating to the last ice age 10,000 years ago and earlier, but only other species' bones were found in the more recent deposits. Menzies concluded that, although it was common earlier, Bulmer's fruit bat had become extinct at the end of the ice age.

Nothing more was heard of this bat until the mid 1970s when David Hyndman began investigating the hunting habits of a small group of people called the Wopkaimin. Although their homeland in the then remote Star Mountains of far western PNG had remained one of the most isolated places on earth, the 20th century was finally catching up with them.

Since time immemorial the bat colony at an enormous cave called Luplupwintem had been granted special protection, and many thousands of bats occupied the roost. It was forbidden for the people of Bultem Village, the settlement nearest the cave, to kill or eat the bats, but they would occasionally give permission for people from other Wopkaimin villages to do so. In any case, the cave was so treacherous that only a few men were brave enough to enter. Because the bats roosted on the roof of the cathedral-like chamber, they were largely immune to attack with bow and arrow, and only a few were taken at a time.

At about this time the PNG government was extending its influence into the rugged ranges, and exploration of the Ok Tedi Mine was beginning. For the first time, the Wopkaimin could work for cash and buy shotguns and rope. Their hunting strategies were rapidly changing. One day, Hyndman accompanied some hunters to Luplupwintem, which is perched high above PNG's spectacular Hindenburg Wall. Large fruit bats were screeching and circling the

roost in the thousands. The cave appeared to be inaccessible, but with the aid of store-bought rope the hunters entered. They fired a shotgun repeatedly into the mass of flying bats. Many hundreds were killed, and the people of nearby villages enjoyed an enormous feast.

Hyndman wished to identify the bats and cleaned two skulls to be identified later. Imagine his surprise when he found that the bones were from Bulmer's fruit bat, a species that he had described as being long extinct. Hyndman and Menzies returned to the great cave some months later. Tragically, they found it silent and almost empty, with just two bats circling the roost. Apparently hunters with shotguns had exterminated virtually the entire colony.

Various people visited Luplupwintem on later occasions, but all found it deserted. By early 1990, it appeared that for a second time Bulmer's fruit bat was extinct. I resolved to carry out a search for the species. It was, after all, the only PNG mammal which was thought to have become extinct in historic times. Also, it had survived in one cave until the 1970s. I felt that it was possible that a remnant population existed somewhere and that if I acted quickly enough it might be possible to protect it.

Ok Tedi Mining had kindly offered to fund the search, and in May 1992, I headed a small group with Lester Seri from the PNG Department of Environment and Conservation. We set out for the cave, expecting to find it empty. As we approached, we were stunned to hear the cries of fruit bats rising from the floor. We raced forward, then clung onto the trees in fear; the cave forms an enormous vertical-sided shaft that, because of the thick vegetation, can only be seen when one is about to fall into it.

It is a truly enormous cave. Its southern side is formed by a vertical cliff over 3,000 feet high, while its northern side drops around 650 feet. A flat floor lies at the bottom of the shaft, and opening into the south wall is a huge cathedral-like cavern, which is the roosting site of the colony. That evening we watched 137 bats exit the roost. This tiny remnant had somehow survived the massacre of the 1970s and had re-established in the cave.

The reasons why Bulmer's fruit bat had survived for the last 10,000 years only in this one cave were not hard to determine. The cave is large enough to shelter thousands of these large bats, and they have easy access to it. Its sides are so sheer, and it is so deep, that until recently humans have found it virtually impossible to enter. Even if one or two of the bravest hunters did get in, the bats roost so high on the roof of the cavern that an arrow is barely able to reach them. The bats are clearly very sensitive to human hunting, and as the numbers of humans in PNG increased, they were driven out of every roost except this one.

The bats had many surprises in store for us. Bulmer's fruit bat is a large blackish-colored animal with a wingspan of over three feet. Its wings meet in the middle of the back, making the back appear naked and giving the bat extreme maneuverability in flight. It is one of the few bats that can hover and even fly backwards. It is also the largest bat species to roost in caves, and because it must rely on sight in the dimly lit environment, this maneuverability must be a great advantage. When in its roost, it makes a peculiar bird-like call, reminiscent of the call given in flight by some species of New Guinean parakeets. A different, but again bird-like call, is given by the first few individuals that leave the roost as they circle the cave entrance.

In April of last year, Lester Seri and I revisited Luplupwintem. We found that the young of the year were foraging independently, but that unfortunately the colony had increased only to about 160. This is much less than the potential natural increase, and we fear that significant hunting may still be taking place, probably at feeding locations. Many of the bats we saw appeared to be young, indicating that adult mortality may be high.

Very little is yet known about this mysterious bat, but we hope to learn a lot over the coming years. Ok Tedi Mining is funding a research and conservation program for the species, to be carried out by the staff of the PNG Department of Environment and Conservation. Local landowners are now eager to protect this extraordinary bat and with their help, funding from Ok Tedi, and continued education of local people, this species can recover.

[bio]

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*Bulmer's fruit bat was believed to be extinct, but in 1992 the author found that a small colony had survived.*



*The bats likely survived in this single cave because it is so treacherous for humans to enter. The cave is a geological formation called a doline. Shaped like an enormous inverted cone, it culminates in a deep vertical shaft. Hidden in vegetation, the huge wedge-shaped entrance is almost invisible until one is about to fall into it.*



*By virtue of geography, Bulmer's fruit bat territory remained one of the most isolated places on earth until as recently as the mid-1970s.*

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