



BATS

NEWSLETTER OF BAT CONSERVATION INTERNATIONAL

DECEMBER 1984

Flying Fox Nearly Extinct in Samoa *by Dr. Paul A. Cox*

As a tropical botanist, my interests in rainforest animals used to revolve almost exclusively around keeping them out of my tent at night. This narrow attitude was permanently shattered, however, when I became acquainted with the Samoan Flying Fox (*Pteropus samoensis*).

I will never forget the first time I saw one of these giant bats in the rainforest. One day, while climbing a tree, I saw what appeared to be an eagle flying away from a liana flower. The bat I saw in my field glasses appeared to have a wingspan of five feet or more and lacked the white fur on the back of the neck that characterizes the locally common flying fox, *P. tonganus*. This large bat was black and its behavior was completely unusual. I later thoroughly enjoyed watching them soar, eagle-like, high

above the forest in midday sun.

In the following years, my interest continued. I found that these bats are diurnal and territorial and that they live in solitary, apparently strongly bonded pairs. In early March, 1981, while in the Tafatafa rainforest on Upolu Island, I found a roosting pair in a tree. One awoke and immediately flew. Nevertheless, when its companion failed to arouse, the first bat repeatedly returned, hitting it with its wing until the second bat awoke, and the two flew away together. Given the bats' fear of humans, who hunt them for food, the repeated attempts of one bat to arouse its companion, and their subsequent departure together suggested a strong pair-bond.

Many native hunters became aware of my interest in the Samoan Flying Fox, and as a result they brought me

baby bats, orphaned when their mothers were shot. My wife Barbara began a bat nursery, much to the fascination of our two children. Six infant bats were fed human baby formula, and they preferred to nurse while hanging upside down on an outstretched arm. They also enjoyed being cuddled and stroked. Within several weeks, our bats would squeak with delight when they saw us coming, and as they grew bigger they would crawl across the mats toward us. Our whole family fell in love with them.

I was surprised to discover that *P. samoensis* was the primary pollinator of a liana (*Freycinetia reineckei*). William Burck, of the Buitenzorg Botanical Gardens, had described flying fox pollination of *Freycinetia* lianas in Indonesia nearly a century before, but his work had been discredited by Otto Porsch, who did not believe that organisms as large as flying foxes could function as pollinators. My three years of careful experiments and observations in Samoa, however, demonstrated that Burck likely was correct.

I knew that the social structure and territoriality of *P. samoensis* resulted in a limited population, but I became alarmed when I and several Samoan pigeon hunters began to notice sharp population declines. The combined effect of too much logging and hunting apparently was posing a serious threat. In 1979, in the mountains of Tapatapao, Upolu Island, over 30 *P. samoensis* were taken by hunters; in 1980 this figure dropped to 9; and in 1981 it dropped to zero.

This past July and August (1984), I spent several weeks searching the Tapatapao region for *P. samoensis* but couldn't find a single individual. Mr. Jack Netzler, Minister of Agriculture of Western Samoa, informed me, to my dismay, that commercial ex-



The Samoan Flying Fox, from T. R. Peale's 1848 description.

port of flying foxes to restaurants on Guam was being considered by the government, and that applications for licenses had been received. However, Mr. Netzler was personally very sympathetic to the need for preservation of *P. samoensis* and asked me to write a position paper for the Prime Minister.

In my report I expressed my fear that *P. samoensis* is on the threshold of extinction in Samoa. I know of one breeding pair on Tutuila Island in American Samoa, and I am yet hopeful that several exist in the forests of Tafatafa, on Upolu Island, although I haven't surveyed that area for over two years. I have not found any on Savali Island, and it appears that the Tapatapao population is, or soon will be, extinct if logging and hunting continue. In the Manu's group of American Samoa I have spotted one individual on the island of Ta'u but have yet to survey Ofu or Olosega Islands.

I therefore proposed that hunting of *P. samoensis* be completely forbidden. Most importantly, I proposed that the entire inland lake region of Upolu Island, which is now being rapidly logged, be made into a National Park to preserve and protect *P. samoensis* and several rare plants that grow there. This also would protect the principal watershed of Upolu Island.

If *P. samoensis* is to be saved from extinction, additional steps will be required. Surveys of remaining populations are urgently needed, and may be feasible from aircraft, since these bats like to soar high above the islands on afternoon thermals. Captive breeding should also be considered. Our experience suggests that this is indeed possible. Unfortunately our initial efforts met with disaster, since I was unable to obtain necessary custom clearances to import our small colony to the United States. When we left Samoa, the young bats were left with a local high school biology teacher for safekeeping. However, he tragically forgot to feed our bats one weekend, and all of them died.

The most important steps required to save Samoan Flying Foxes appear to be protection of their habitat from further logging encroachments and protection of the bats from hunting. The Government of Western Samoa is willing to consider conservation efforts, but will need outside funds to



Zuri is a Straw-colored Flying Fox (*Eidolon helvum*) from Kenya. This species is vitally important, both ecologically and economically, throughout much of Africa for its seed dispersal and pollination services. Zuri and Ratiki (see opposite page) were brought to the U.S. in May 1984 by Dr. Merlin Tuttle and are already highly successful public relations representatives for BCI, having most recently appeared on the NBC David Letterman Show. Photo courtesy Merlin D. Tuttle.

support the establishment of wildlife reserves or National Parks. Ideally, a joint conservation program should be initiated in both American and Western Samoa to bring *P. samoensis* back from the brink of extinction.

It is my sincere hope that somehow a way will be found to save these marvelous animals. They are important, not only as biological marvels, but also as major pollinators and fruit dispersers within the fragile Samoan rainforest. Without immediate outside assistance, the prospects for saving *P. samoensis* seem slim.

(Author's Note: Two specimens shot by hunters were confirmed as *P. samoensis* by Dr. Karl Koopman at the American Museum of Natural History. These had wingspans of only 3.5 feet, the size considered typical for the species. The larger bats that I observed appeared to behave like normal *P. samoensis*, however their size raises the possibility that my observations include a second, but undescribed endangered species. These findings emphasize the paucity of available information and the urgency of a thorough investigation.)

Flying Fox Update From Australia

The Queensland Minister for Parks and Wildlife appears to be acutely embarrassed by the flood of overseas correspondence following Elizabeth Pierson's article in the last issue of BATS. Most letters were from North America, but others came from Europe, Asia, and also from Australia, where the article has been widely circulated.

At present the Minister has asked his officers from Parks and Wildlife to prepare a full report on flying foxes... an action he should have taken prior to his hasty decision!

Two Australian-wide natural history magazines are running articles on flying foxes, and it is hoped that these articles will generate more letters of protest from around Australia. Meanwhile, the Australian Mammal Society and the Wildlife Preservation Society of Queensland are continuing to pressure the Minister to reverse his decision. The WPSQ organized several "bat nights" and trips to the flying fox camp in Brisbane which were very well attended by the public. They are also running a special trip to the Brisbane flying fox camp for journalists to show them how vulnerable flying foxes and their young are to any sort of disturbance or vandalism. A documentary on the flying fox debate is due to be screened on Australian-wide TV in early 1985.

The ground feeling is one of optimism, but one can never be sure of anything when politicians have to change face under public pressure. Whatever the decision, the support of BCI in generating world-wide awareness of the plight of flying foxes in Australia, resulting in international condemnation of the Minister's actions, has been greatly appreciated by the supporters of flying foxes here in Australia.

(Editor's Note: Your continued letters are urgently needed. The Honorable P. R. McKechnie, Minister for Tourism, National Parks, Sport and the Arts, Parliament House, Alice Street, Brisbane 4000, Queensland, Australia, is responsible for legislation permitting flying fox killing. Write to him, and ask friends to write. Point out that extinction is not the issue. Flying foxes are declining rapidly, yet large numbers are vital for pollination and seed dispersal of Australia's hardwood forests. Ask what has