

The Pacific Flying Fox Trade: A New Dilemma

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By GARY J. WILES

EXPERIENCE has shown that, without adequate regulation, commercial marketing of wildlife often leads to over-harvesting and that hunted species can quickly slide toward extinction. A classic case can be found among the Pacific islands, where international commerce in flying foxes has occurred for 25 years. Although new regulation has stopped the trade with a number of islands in recent years, the issue could heat up again this fall, and conservationists likely will face another challenge in their efforts to protect flying foxes in the Pacific.

To understand this complex and often highly charged issue, we must first understand how it began. Fruit bats have been a cultural delicacy among the native Chamoru people of Guam and the northern Mariana Islands for over a thousand years. Hunting bats in small numbers by primitive means likely did little to endanger the population, but after World War I, local islanders were able to begin obtaining guns and kill far more bats, a phenomenon soon found throughout the Pacific. By the 1970s, the Mariana flying foxes (*Pteropus mariannus*) on Guam and in the Commonwealth of the Northern Mariana Islands (CNMI) had declined radically. They were legally protected in the 1970s by both governments and declared endangered on Guam by the U.S. Fish and Wildlife Service (USFWS) in 1984.

With Guam's own bat population nearly gone, entrepreneurs turned to other islands in the Pacific to supply the Chamorus with fruit bats. An estimated 230,000 bats representing at least 10 species (flying foxes mostly of the genus *Pteropus*) were imported to Guam from 1975 to 1990. During the same period, about 50,000-75,000 more animals were sent to nearby Saipan and other islands in the CNMI. Sadly, the high volume of trade produced declines in bats in other island groups in Micronesia and Samoa, where the bats were hunted for export to Guam.

Concerned that continued commercial trade would endanger flying fox populations on additional islands, BCI and other conservationists sought and won protective listing for the bats. All species of *Pteropus* and the similar genus *Acerodon* were protected under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) in 1989 [*BATS*, Winter 1989-90]. This treaty, signed by over 100 nations, is the principal tool for regulating international trade in endangered species. Each country is responsible for enforcing the treaty within its jurisdiction. In the United States, this task falls upon the USFWS.

The seven most threatened species of *Pteropus*, including the Mariana fruit bat, were given Appendix I status, which affords the highest level of protection. The remaining 49 species of *Pteropus* and six species of *Acerodon* were placed on Appendix II, which controls trade through permits and is allowed only when deemed non-detrimental to the survival of wild populations.

Implementation of the new regulations began in 1990 and immediately ended imports from all island groups except for the Republic of Palau [*BATS*, Spring 1990]. Even though Palau's flying foxes (an endemic subspecies of the Mariana flying fox, *P.m. pelewensis*) were given an Appendix I listing, exporting them to Guam continued for several reasons. First, unlike American Samoa, Palau has no protective laws of its own. Primarily though, trade

continued because the CITES treaty applies only to international trade, and not domestic commerce. The Palau Islands have been governed by the United States as part of the Pacific Islands Trust Territory since the end of World War II. Both Guam and the CNMI are also American territories. Exports from Palau to Guam and the CNMI from 1990-1993 have averaged over 13,000 animals a year.

Not wanting Palau's bats to suffer the same fate as those in other island groups, biologists from Guam, the CNNE, the USFWS, and Bat Conservation International, initiated an archipelago-wide survey in 1991. The survey results were both surprising and encouraging: although a total population estimate could not be deduced, the bats appeared to be fairly common. On a cautionary note, however, they also learned that the population had plummeted once before in the late 1970s during the initial period of heavy trade. Ten years later, after a several-year lull in hunting, the bat population appeared to have partially recovered. It is unknown whether the population could sustain continued harvest at the current level.

PALAU'S BATS ARE about to get another reprieve when the island group becomes an independent nation this fall. Last year, Palauans voted in favor of a new agreement with the United States, which will dissolve the Trust Territory and give independence to Palau on October 1-a historic day for the tiny republic as it ceases to be a foreign colony of a world power for the first time in over a century.

As a result, CITES restrictions on trade will start immediately, prohibiting further bat shipments to the Marianas. At first glance, this change looks positive, as it will give Palau's flying foxes an unprecedented level of security. But how will the Chamorus react to a sudden halt in the bat trade? Will they accept such a change when current demand remains high?

In a 1990 interview survey, which was partially funded by BCI, researcher Leonora Sheeline found that many Guamanians attached a strong cultural value to eating flying foxes. Half of her respondents claimed to enjoy bats as food, although only about 25 percent actually ate them at least once a year. A number of individuals were emphatic in their desire to have access to flying foxes. Such attitudes may be even stronger among Chamorus in the CNMI, who are more traditional than those on Guam.

In anticipation of the coming change, local wildlife officials are already discussing the potential problems and trying to find solutions. They believe several things could happen when imported flying foxes are no longer available. The first is that Appendix II species of bats from other countries may become subject to trade, allowed by CITES under some circumstances. Some countries, such as Australia and the Philippines, prohibit the exportation of flying foxes, but others such as Indonesia, Papua New Guinea, the Solomons, Vanuatu, Thailand, and Viet Nam do not. Complex permits required by CITES, along with poor airline links, have made these countries less convenient sources of bats, and most have not previously shipped bats to the Marianas. Assuming that permits can be obtained, it will still take time for exporters and importers to set up connections.

Although it is difficult to judge how much of the market demand might be met by countries with bats that can be legally exported, there is concern that opening up new trade could create bat declines in other areas. Another concern is that smuggling may occur. When legally imported bats were available from Palau, smuggling was never a serious problem.

At issue in both cases is the ability of the USFWS to enforce the CITES treaty. A single wildlife inspector and one special agent stationed on Guam work with local customs inspectors from both Guam and the CNMI. With the potential for increased illegal traffic, these officers will need to monitor air and shipping cargo carefully to prevent abuses. One example illustrates what could occur. Early in 1993, Palauan and USFWS officials intercepted a shipment of 420 flying foxes-the largest ever seized-going from Yap to Guam via Palau. Yap's bats are protected under both CITES and local law. The exporter had intended to obtain a falsified Palauan certificate of origin for the bats. He was convicted in federal court on Guam and given a six-month prison sentence and a \$1,000 fine.

In the meantime, officials are especially fearful that illegal hunting of resident Mariana flying foxes will increase

dramatically. Only about 1,500 bats combined survive on the inhabited southern islands of Guam, Rota, Tinian, and Saipan. Another 6,000-10,000 animals may live on the 10 remote and rugged islands north of Saipan. Without adequate law enforcement, poaching could decimate these populations in just a few years.

Even though hunting the bats is illegal, animals from the northern islands now sell for \$30 each on Saipan. If demand increases, and prices go higher, commercial hunters are likely to expend much more effort to capture bats. On Guam, the remaining several hundred animals are especially vulnerable because of easy access to their colony sites-despite official protection of the new Guam National Wildlife Refuge. Enforcement of the CNMI protective laws has long been weak.

GIVEN THE HISTORY of the problem and the even longer history of eating fruit bat, many Chamorus are unlikely to give up that easily what they consider an important part of their cultural heritage. Even though cutting off the bat trade with Palau will be mandated by an international treaty, the action is sure to raise cries of cultural insensitivity among the Chamorus.

Relations between the USFWS and the government of Guam are already strained by the recent designation of a national wildlife refuge on the island [*BATS*, Winter 1993, Summer 1994]. Nearly all of Guam's flying foxes reside in the refuge. The decision to place 24,000 acres of forest land into the refuge was unpopular with some residents because they fear that it will prevent the future return of the land to former private owners or the government of Guam. Further resentment of the federal government among island residents may occur when imported fruit bats are no longer available. Local politicians are likely to respond by calling for a relaxation of CITES restrictions, but the regulations, decided at an international gathering held every few years, are not so easily amended and must go through a lengthy review process.

A possible alternative to saving the bats on Guam and the Marianas may be to manage flying foxes as a renewable resource and allow limited harvesting under strongly controlled conditions. If CITES protection allows the recovery of bat populations on the neighboring island groups, strict export prohibitions may be hard to justify in the future. Perhaps several thousand bats a year could be harvested from an island group such as Palau without harming the overall population. To succeed, however, such harvests would require strict control, something historically difficult to regulate. Furthermore, in order to resume legal exports to the Marianas, an easing of CITES restrictions (such as downlisting Palau's bats to Appendix 11) would be necessary.

There are no easy answers that satisfy all viewpoints, and local conservation agencies are struggling with how to handle these differing opinions. Protecting resident bat populations will pose a significant burden on law enforcement authorities and will require interagency cooperation and coordination. An anti-poaching media blitz and education program may help, particularly in the CNMI. If people are aware of the problem, perhaps they may be more willing to participate in finding solutions.

Unfortunately, the threat of increased poaching is not the only danger facing Guam's bats. Long-term recovery of the island's flying foxes will also depend on controlling predation by the introduced brown tree snake (*Boiga irregularis*), which has decimated not only the bats but also much other wildlife in the last decade. This issue is being addressed by the new national wildlife refuge.

The bats are not all that is at risk. In island rain forest ecosystems, the diversity of insect and bird fauna that pollinate flowers or disperse seeds is low, making bats some of the most important regenerators of island ecosystems. As much as 40 percent of Guam's endemic flora may be dependent on the declining flying foxes. As bat populations decline, island economies may also be in jeopardy. In other parts of the Pacific, mangroves provide spawning ground for numerous fish and crustaceans, which in turn are harvested by fishing industries. Mangrove tree flowers are pollinated by flying foxes. This is but one examples BCI study documented that over 450 commercial products in the Old World tropics come from plants that are pollinated or seed-dispersed by flying foxes.

In the long run, the answer to saving the bats of Guam and the Marianas may lie with the Chamorus themselves. Sheeline's study revealed that most of those who enjoyed eating fruit bats were over 55 years old. Few younger Chamorus claimed to eat bats, and perhaps the practice will be even less important to their children. But even those who are unwilling to give up the delicacy must soon come to recognize that, without some conservation measures, there may be no fruit bats left at all.

(Bio)

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The author takes a look at one of Guam's remaining forests. As much as 40 percent of the island's endemic flora may be dependent on the declining flying foxes.



Guam's flying foxes pollinate the brilliant flowers of the coral tree, one of the island's most spectacular plants.



The Mariana flying fox is the only major seed disperser for cycad trees on Guam.

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