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Can Australia's Flying Foxes Survive?  
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*by: Elizabeth D. Pierson*

Australia's flying foxes are in serious trouble. In a recent surprise move the Government of Queensland, apparently under pressure from a small but influential fruit growers lobby, removed four species of flying fox from the protected fauna list. This means there is now an open season on flying foxes, and these highly beneficial animals are already suffering mass slaughter. I witnessed this myself on a recent trip to Queensland, and know through communication with scientists in Australia, that the situation is becoming more critical daily.

This controversy dates back to the beginning of European settlement in Australia. Flying foxes traditionally have been viewed as intolerable pests, orchard robbers par excellence, that thrive on cultivated fruits, as rats do on human garbage. Nothing could be farther from the truth. Flying foxes are primarily blossom feeders, major and essential pollinators of native forest trees. Fruit, especially cultivated fruit, plays only a very minor role in their diet.

Nevertheless, flying foxes have suffered terribly at the hands of man. Many years of intentional killing, in addition to habitat destruction, have resulted in drastic declines. In 1930, flying foxes still formed single "camps" (see photo) up to four miles long by a half-mile wide. One such camp apparently contained up to 30 million animals. Since then, many colonies have disappeared entirely, and only a few are reported to contain more than a hundred thousand of these animals. Even fifty-five years ago, old timers were saying, "Flying foxes are nothing to what they used to be." Every scientist who has ever worked with these bats has complained of declining numbers. They now worry about possible extinction.

This action by the Queensland Government represents an alarming reversal of policy in a country that often has been laudably farsighted in its conservation practices. Ten years ago, long before most people recognized the valuable role that such bats play in the ecology of native forests, Queensland granted protected status to flying foxes, and since that time most other states have followed suit. Now, without consulting either the Park Service (which is responsible for implementing wildlife regulations) or the scientific community (who have accumulated valuable new knowledge in recent years on flying fox ecology) - in fact, without even an open debate among the fruit growers themselves - the government has taken this unilateral, potentially disastrous step backwards.

The new legislation is deeply disturbing on several counts. First, it was implemented without investigating whether flying foxes actually cause economically significant losses to the fruit industry. This is notable, since all previous research indicates that they do not.

Second, implicit in this legislation is the assumption that removing the animals from the protected fauna list constitutes improved management of the alleged problem. This is clearly false. Under pre-existing legislation, fruit growers readily could obtain permission

to deal with problems affecting their orchards. The new law places flying foxes on the same list of pests as introduced rats, mice and pigs, and by lifting all restrictions, encourages such cruel and senseless activities as shooting flying foxes anytime, anywhere, "just for the fun of it." A far more reasonable approach is for fruit growers (many of whom favor conservation) and scientists to work together to develop humane and effective means of control. Despite attempts by Australian scientists to gain support for just such research, the government has reduced its funding of flying fox studies.

Third, the new law reveals an alarming ignorance about the critical role that flying foxes play in the propagation of native forests. These animals pollinate countless thousands of trees nightly, covering enormous areas in the course of their seasonal migrations. Although the effect of such activities in Australia has not been investigated, it is almost certainly vital. In other parts of the world, similar bats already are known to be the primary and sometimes sole pollinators or seed dispersers for forest trees whose annual harvests are valued in excess of 100 million dollars. The truth is: **without flying foxes, many Australian trees, including some commercially valuable eucalyptus, may not survive.**

### **Are Flying Foxes a Serious Threat to the Fruit Industry?**

The answer to this question is almost certainly **NO**. The ostensible conflict between fruit growers and bats in Australia has a long and instructive history. The controversy was so severe in the 1920's that the Governments of Queensland and New South Wales hired Dr. Francis Ratcliffe, a distinguished British biologist, to spend two years studying the flying fox "problem," and "discover some wholesale method of destruction which would once and for all relieve the growers of the onus of dealing with the pest." This man was no conservationist, and as a responsible scientist, undertook the task of gathering data, so that a practical, economically feasible solution might be found. He had the fruit growers interests at heart, and in fact, derived all his information "from the growers themselves, and from fruit inspectors and others in close contact with the industry."

In a carefully documented report, he came to the following astonishing conclusion: "During this investigation one point of paramount importance has become evident. **The assumption that the flying fox is a menace to the commercial fruit industry of Australia is quite definitely false, and cannot be cited as a valid reason for the expenditure of public money on its control.**" He reviews the situation with seven major crops (all of which are grown in Australia today): bananas, citrus, pineapples, apples, stone fruits (peaches, etc.), papayas and mangoes. He concluded that the bats preferred fruit too ripe for commercial harvest and that **"the loss to the commercial fruit crop of Queensland is so inconsiderable as to be almost trifling."** The bats' selectivity for ripened, succulent fruit is not likely to have changed in the intervening fifty-five years. Thus it is reasonable to assume Ratcliffe's conclusion would still hold.

How, then, have bats acquired a reputation as orchard thieves? For one thing, they visit orchards at night, when it is difficult to get an accurate sense of their numbers, and their noisy vocalizations blatantly advertise their presence. They eat fruit that ripens prematurely or that is missed in harvesting. In the course of searching for such fruit and in competing among themselves, some unripe, potentially marketable fruit can get damaged. This is a legitimate concern, and one that should be addressed by further research. Ratcliffe himself acknowledged this problem, and wrote, "For every fruit eaten, there were many more knocked down and rendered unmarketable by scratches and bites."

Ratcliffe, however, attributed the widespread hatred of flying foxes primarily to a different,

long standing problem that affects most bats: prejudice and misunderstanding.

"As might be expected, in the collection of information a good deal of exaggeration was met with. The experience of an exceptional year . . . would be given as typical, and only in subsequent conversations would its abnormality be confessed. In the same way, damage done to individual trees, possibly the only ones in an orchard to be attacked, would be recorded as though it were representative of the whole crop."

"As a result of reports of this nature, a mythical idea of the appalling destructiveness of the flying fox has gained ground. It completely dominates all popular writing, e.g., press articles, on the subject. So firmly rooted has this idea become, that it is possible that the following attempt to give an accurate picture of the conditions found in the case of each type of cultivated fruit will be considered in some quarters to be a definite misrepresentation of a situation which is assumed to be very serious."

"Psychological factors play a far from negligible part in determining the general attitude towards the flying fox. The very nature of the animal precludes an unbiased assessment of its economic importance. It is a bat, and an unnaturally large one into the bargain.... During the investigation it was quite astonishing the number of individuals who prefaced their information regarding flying foxes with a statement that they were 'stinking, lousy brutes.' This attitude is really very significant."

Recent research by Dr. Merlin Tuttle on fruit bats in Africa (see *BCI Newsletter*, June, 1984) and current studies by scientists in Australia have confirmed the early findings of Dr. Ratcliffe. Like most humans, bats prefer ripe fruit. Commercial fruit, which is usually picked green for safe shipping, is unpalatable.

### **The Current Crisis**

In June of this year, a group of us (seven American zoologists and botanists), working collaboratively with Australian scientists, spent several weeks in Queensland engaged in bat research. Flying foxes were not the object of our study, but their crisis was so severe, we had to take notice.

In an attempt to see some flying foxes, we obtained directions to five of their most reliably used camp sites. These were traditional colony roosts where we were assured we could find plenty of bats. Two camps were empty. The animals had been killed or forced to move. A third was being harassed by an eight-year-old shooting at the bats with an air gun for "after school sport." The gaping holes in many bats' wings testified to the frequency of such events. A fourth camp was a scene of recent carnage. It was strewn with dead and dying bats. One of the men responsible declared that his actions were now legal, and "the only way to get rid of flying foxes is to kill enough so the stink of rotting carcasses drives the others away." Only the fifth camp, located on an official island reserve, was undisturbed. On another occasion we witnessed a magnificent evening exodus of about 1,500 flying foxes traveling with apparent unswerving determination, high over the local orchards and gardens of Cairns, to a forest island off-shore. A ranger told us this was their favorite feeding ground.

Our most poignant experience was a twenty-four hour vigil with one of the wounded flying foxes. It had been shot and was close to death from trauma and starvation. Despite what must have been an extremely painful wound, this gentle animal let us bandage its broken arm, took food from our hands, and sought security and warmth by roosting on my

shoulder. The concerted efforts of a local veterinarian and several bat biologists to save its life failed. The animal died, only one of thousands that have suffered in this way.

It is sad, but ironic, that those very features which make flying foxes so engaging leave them exceedingly vulnerable. Gentle animals, with few natural enemies except man, they rely for defense on their spectacular capacity for flight. This serves them well in escaping from eagles and snakes, but provides little protection against a gun. Flying foxes are highly social animals, that roost in large groups on exposed tree limbs. Their loud -and frequent vocalizations advertise camp locations, and their reluctance to abandon traditional sites makes them easy targets.

Like primates, probably their closest living relatives, bats have a low reproductive rate and a multi generational social structure. This means that colony losses can have long-term disastrous consequences. The animals at greatest risk are those the colony can least afford to lose-nursing mothers (who suckle their one young for up to six months) and camp "guards" (animals up to 20 or more years old who protect the camps and may play an essential role in passing information to younger generations).

Flying foxes move seasonally among several traditional camps. These migrations appear to be dictated by shifting food resources and complex nutritional requirements. For example, pregnant females of one species seem to require the leaves of a particular calcium-rich tree, essential to the health of their developing young. Current harassment of traditional camps is seriously disrupting normal behavior. Habitually resident along the tropical coast, flying foxes are showing up in cold inland areas, alone when they should be in groups, searching in vain for familiar food resources. The picture is an ugly one. Those animals not shot in camps, may die later of starvation.

(Bio)

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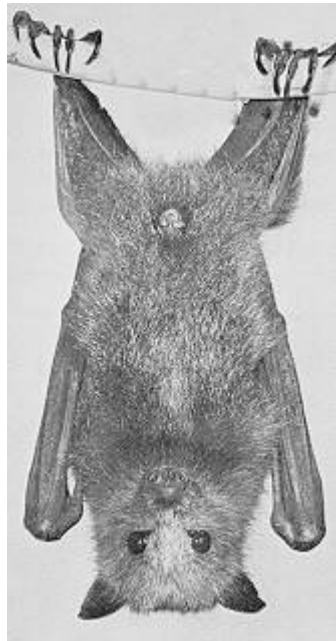
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*Gray-headed Flying Foxes (Pteropus poliocephalus) roosting in their daytime "camp" in Brisbane, Queensland. Photo courtesy Dr. Leslie S. Hall.*



*Spectacled Flying Fox (Pteropus conspicillatus), Queensland. Photo courtesy S. Breeden.*



*Gray-headed Flying Fox, Queensland.  
Photo courtesy Edric Slater.*

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