Flying-Fox Diaries – High School Students Track Large Fruit Bats in Eastern Australia

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Project coordination: Billie Roberts (Biologist, Griffith University) and Kelly Roche (Office of Environment and Heritage).

On the north coast of New South Wales, Australia, Maclean High School is home to a controversial colony of flying-foxes (large fruit bats of the genus *Pteropus*). Urban development has slowly encroached on the flying-fox roost ("camp") and in the 1960s the school was built next door. From that time, the presence of flying-foxes has created conflict with the local community. The camp is made up of both grey-headed (*Pteropus poliocephalus*) and black flying-foxes (*P. alecto*), which occupy lowland rainforest vegetation that is listed as an endangered ecological community under State legislation. In the case of the grey-headed flying-fox, this camp is considered to be habitat critical to the survival of this threatened species because it is used by such large numbers of animals and is an important maternity site.

Photo by Debrah Novak

Biologist Billie Roberts releasing one of the collared black flying-foxes. Fitted around the neck onto a leather collar is a 12g solar powered PTT (duty cycle 10 hrs ON 48 hrs OFF).

In early 2012 a group of 16-year-old senior Biology students from Maclean High School assisted local biologist Billie Roberts and the state environment agency (Office of Environment and Heritage) in a telemetry study of these bats, aimed at involving students in cutting-edge wildlife research and gaining knowledge of the migratory behaviours of black flying-foxes on the east coast of Australia. It was also hoped that the project would improve the public view of bats in the local area and gain knowledge of flying-fox behaviour which may help resolve future conflicts in the local and wider community.

Photo by Debrah Novak

One of the black flying-foxes captured in the mist nets. Biologist Billie Roberts secures the head while other volunteers detangle the animal's wings and feet.

Using a mist net held up by 11 m poles, the flying-foxes were trapped at dawn and dusk, when leaving or returning to the camp to feed. Every bat caught was aged, sexed, thumb banded for future identification, weighed, measured, assessed for general body condition and offered supplements (fruit juice) for their missed feed. A total of 63 flying-foxes (38 grey-headed and 25 black flying-foxes) was caught during the trapping. Four adult male black flying-foxes (> 700 g) were fitted with 12g solar powered bird PTTs, specially modified to be mounted to a neck collar. Students assisted with all aspects of field work including mist netting, measurements, and attachment of the satellite transmitters to sedated bats. Flying-fox numbers at roost sites in the area were also monitored every few months; along with information on flowering trees to assist with the interpretation of flying-fox movements. Three oral presentations were given about the project by the students to various community groups.

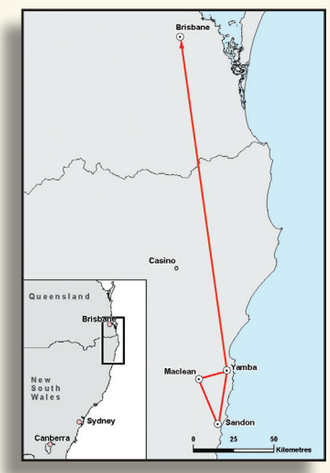

Figure 1. The movements of the black flying-fox named Wayne over the past four months. The white dots represent the four roosting sites used and the red line the direct line path.

The four male bats which were collared have been tracked for over four months, and we are still receiving regular data from the animals. Movement patterns have varied between individuals, with some moving long distances and others remaining relatively sedentary. Two flying-foxes (named Bruce and Ali) have had very stable roosting and feeding areas; using only one roost site over the past four months and feeding within 2 km of their roost. The other two flying-foxes (Wayne and Jonah) have been more mobile, moving between a greater number of roost sites (up to 4) and travelling longer distances to feed (Figures 1 and 2). The maximum distance moved between roost and feeding site was 32 km. One flying-fox migrated north 220 km over just a few days to roost in the metropolitan area of Brisbane.

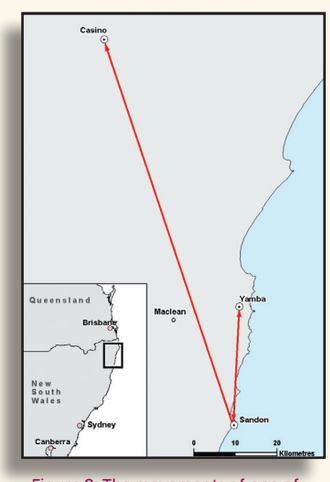

Figure 2. The movements of one of the collared black flying-foxes named Jonah. The white dots represent roost sites; the red lines represent the animal's movements between these sites over the past 4 months.

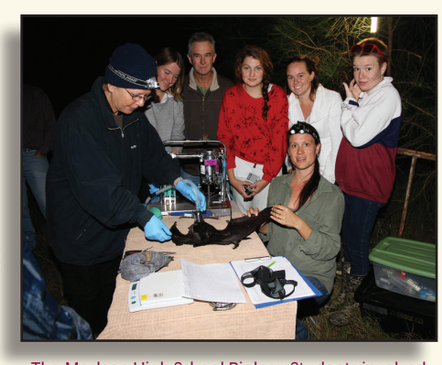

Photo by Debrah Novak

The Maclean High School Biology Students involved in the project, with teacher Wayne Rice, assisting wildlife carer Imelda Jennings and researcher Billie Roberts with measuring, weighing, tagging and collaring the flying-foxes.

The project has helped to clear up many misconceptions surrounding flying-foxes held by the students and teachers. Everyone touched by the project gained new insight and knowledge into flying-foxes' movements and behaviour and the intricacies of telemetry research; many preconceived opinions about bats were changed. It has also led to the general education of the community, through the presentations given by the now informed students. The students in particular gained valuable knowledge of the importance of flying-foxes in the ecosystem and the difficulties of managing this mobile species in an urban environment.