The Amazing Adventures of Colossus

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During December 2003, the Henipavirus Ecology Collaborative Research Group (HERG) deployed a disease surveillance team in Malaysia. One of the team's goals was to attach a Platform Terminal Transmitter (PTT) onto a Malayan flying fox (*Pteropus vampyrus*), the largest flying fox in Malaysia and one of the largest in the world. HERG team members Dr. Jon Epstein, Consortium

Photo by Craig Smith

HERG team members Kwai Hoe Chong, International Medical University and Dr. Jonathan Epstein, Consortium for Conservation Medicine.

for Conservation Medicine, Dr. Sohayati Abdul Rahman, Veterinary Research Institute and Craig Smith, Queensland Department of Primary Industries and Fisheries, spent a week sampling the Malayan flying foxes for the presence of antibodies to Nipah virus and attaching the PTT.

P. vampyrus is a natural host of Nipah virus, a zoonotic virus responsible for the deaths of more than100 people and the culling of over 1 million pigs in Malaysia in 1999. Whilst flying foxes do not display signs of clinical illness when infected with Nipah virus they have the potential to shed the virus and infect other species, including pigs. Satellite telemetry has allowed HERG to study the foraging patterns of flying foxes and determine the potential home range and movement of flying foxes and Nipah virus.

The fourth flying fox to be fitted with a PTT (Microwave Telemetry) by the HERG team and the first in Malaysia, Colossus, was caught feeding in an orchard in southwest Peninsular Malaysia. After a veterinary examination to confirm his good health, the 20g PTT was attached to the flying fox using a leather colar. Colossus was then released near his roosting colony, located in mangroves west of Benut.

Colossus had his PTT attached on the 16th of December 2003. On the 27th December 2003, after a 10 day duty cycle, Colossus's PTT transmitted his location to orbiting satellites indicating that he

Photo by Craig Smith

Colossus, a Malayan flying fox (Pteropus vampyrus), and his leather collar.

was foraging only 5 km from the capture site. Then on the 6th January 2004, satellites relayed his location to HERG team members informing them that Colossus was no longer in Peninsular Malaysia and that he had travelled 160 km, over 91 km of open ocean, to the island of Sumatra, Indonesia.

The duty cycle of the 20g battery PTT was configured to conserve power and allow the PTT to remain operational for almost a year. HERG team members are unable to say how long the journey took as the transmitter was off during Colossus's flight from Malaysia to Indonesia. But flying foxes can travel at 25 to 30 km/hr and in a wind tunnel the Australian Grey headed flying fox (*Pteropus poliocephalus*) maintained 26 km/hr for 4 hours. It is possible that Colossus flew over the 91 km of ocean in as little as 3 hours and could have made the 160 km journey from Malaysia to Sumatra in 5 to 6 hours.

Satellite telemetry studies in Australia using 18g solar PTTs (Microwave Telemetry) have shown that Black flying foxes (*Pteropus alecto*) travel similar distances across water.

Photo by Craig Smith

Colossus, a Malayan flying fox (Pteropus vampyrus), and his 20g battery-powered Microwave Telemetry PTT.

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