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5th Kalaan Kab International Congress on Disease Ecology

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Book of Abstracts

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A multidisciplinary study of the circulation of Nipah virus at the flying-fox / human interface in Cambodia: conciliating public health and conservation

14:48 - Thursday, 27th July, Solar Square

Julien Cappelle, Hoem Thavry, Neil Furey, Vibol Hul, Steven Prigent, Jonathan Epstein, Thongchai Ngamprasertwong, Hok Visal, Veasna Duong, Sowath Ly, Raphaël Duboz , Annelise Tran, Philippe Dussart, Arnaud Tarantola, Aurélie Binot

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Flyingfoxes (*Pteropus spp.*) face several conservation threats in Southeast Asia. They are considered to be the main reservoir of the Nipah virus (NiV), which has caused more than 500 human cases since its emergence in Malaysia and Bangladesh. Though NiV circulation has been documented in flying foxes in Cambodia and Thailand, little is known in Southeast Asia about the risk of transmission of NiV to domestic animals and Humans.

To better assess the risk of emergence of NiV in Cambodia while taking into account the conservation threats to flying foxes, we implemented a multidisciplinary study involving researchers (in ecology,epidemiology, virology, genetics, anthropology and modelling),conservationists and local and national authorities. We monitored the population dynamics and the diet of a colony of Lyle's flying fox(*Pteropus lylei)* as well as the circulation of NiV in the urine of these bats. We investigated the perception of the bats by local communities and their practices regarding bats (such as hunting, collecting guano, harvesting fruits, harvesting and drinking palm juice). We studied the bat / human interface by deploying GPS collars on 14 bats.

Our results showed seasonal patterns in both population dynamics and virus circulation, allowing us to identify a period when local communities' practices may put them at a higher risk of infection. The telemetry study revealed areas with increased potential contacts between humans and bats. Interviews showed limited conflicts between bats and humans and the absence of perceived risk by local communities.

An integrative model is being developed and participatory approaches are being used to transfer knowledge about the risk of emergence and ecosystem services associated with the flying foxes, in order to advocate the use of prevention measures conciliating public health and conservation.