



**Info-collector:** A data logger attached to the back of a painted stork in Zoo Negara accumulates information on the behaviour of the bird. Photo: Dr Ahmad Ismail

# Keeping tabs on storks



# Biologging feeds scientists with data on stork behaviour.

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**B**IOLOGGING, in which animals are tagged to keep tabs on their movements and behaviour, was first tried in Malaysia in 2010 on captive milky storks in Zoo Negara.

It was part of a preliminary study by biologist Dr Ahmad Ismail of Universiti Putra Malaysia (UPM) under collaboration with the University of Tokyo, Japan.

Now four years later, the project has resumed with upgraded technology that will better capture data as well as a refined logger more suited for the birds.

“We are repeating the biologging with storks there (Zoo Negara) as our preliminary work in 2010 was more trial-and-error. It was challenging at that time because we had never done biologging. In the process, we lost a few data loggers which cost quite a lot. Two out of the six birds which were tagged provided us with 24-hour data on their daily activities.

“From there, we could assess their behaviour and energy levels from various movements such as when they are resting, pecking, feeding, flying or flapping their wings. These data are important in



University of Tokyo scientists are able to study the hunting behaviour of sperm whales by tagging them with a data logger. Photo: University of Tokyo

guiding the future management of the birds and their habitat,” says Ahmad. He said the biologist was also tested on free-roaming painted storks at the zoo, but as they are “non-aggressive” species, not much data was retrieved.

He says biologging captive birds is as good as biologging wild ones due to similarities in their basic behaviour. “The risk of loss or damage to the expensive device is reduced in a captive environment. Biologging takes up a lot of time but it’s the only way we can gather useful and important data.”

If the current project for the captive birds is successful, the biologist might be attached to wild milky storks. The scenario for this species

is not promising as it is extinct in Thailand and there has been no sighting of wild milky storks in Malaysia since 2008. Zoo Negara, he says, has successfully bred milky storks and now has over 100 in captivity.

“We are studying the possibility of releasing the captive-breds into the wild to fill the population void in Kuala Gula (Bird Sanctuary in Perak), their previous natural habitat. I’m leading an adaptability study for the newly-released storks from a semi-domesticated environment into the wild.

“Since the birds were in Kuala Gula before, we hope the release there and within the Matang Mangrove Forest Reserve ecosys-



tem will be successful.”

The biologging technology is currently sponsored by the University of Tokyo, so Ahmad hopes to secure funding from the government or the private sector to cover the eventual transfer of technology. He says biologging is similar to the traditional method called telemetry but the latter does not generate much activity-oriented data. He says telemetry is usually used to study foraging behaviour of animals. Data is collected from remote spots where the device is placed and transmitted to mediums like the radio receiver.

Much of the biologging knowledge adopted on milky storks is gleaned from the University of Tokyo, which has over 10 years of biologging experience on sperm whales. Japanese scientist Kagari Aoki says the project was primarily to investigate the whales' hunting behaviour.

“No one is able to see the whales' prey, the mesopelagic squid, in deep waters. We also wanted to moni-

tor the distribution pattern of the squids. Doing biologging on whales is difficult. We need favourable sea conditions and as many sperm whales as possible, and a good team to deploy the recorders. We have carried out three projects so far, tagging over 50 sperm whales in total. Our last project was in 2012 where we tagged 30 whales. The data is still under review.

“Among the things we analysed were speed and acceleration. The bursts of speed that are regularly recorded during the whales' deep dives can be interpreted in two phases, which are either rapid acceleration with active stroking or drastic deceleration with changes in body orientation.

“From their behavioural display, we can better understand how they use hunting strategy and bursts of speed to catch their prey,” says Aoki.

The biologging technology has also been used to accumulate information on dolphins, sea turtles, sea birds and fish.