GPS, camera traps and dung expose the secret life of endangered elephants (w/ Video)

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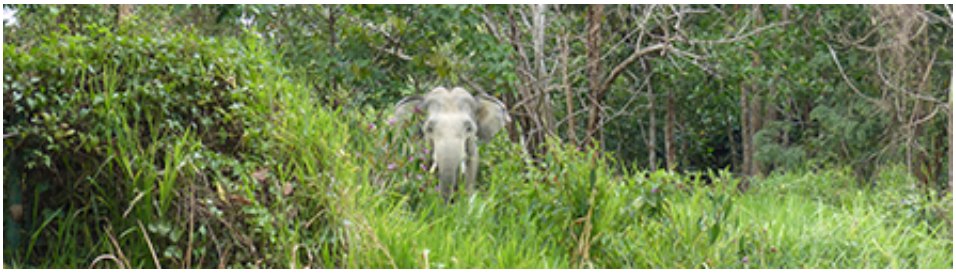

"We can only manage what we measure"—that is the key to a unique research project which is working towards scientifically proven, evidence-based, conservation of the Malaysian elephant. It is being done with the help of GPS collars, camera traps and hours spent searching through elephant dung.

The work is being carried out by MEME—the Management and Ecology of Malaysian Elephants—a research project being led by Dr Ahimsa Campos-Arceiz from The University of Nottingham Malaysia Campus (UNMC). The aim is to learn more about the Asian elephant, and crucially how to mitigate the growing problem of human-elephant conflict.

To help develop a long term strategy to protect the country's endangered elephant population Yayasan Sime Darby (YSD) has formally announced

a RM3.36m (£700,000) commitment to support MEME's research. The grant will also help MEME build capacity within the Malaysian Department of Wildlife and National Parks (DWNP) and Malaysian academic circles to produce a knowledgeable generation of wildlife researchers and managers.

As well as helping to improve current management techniques, the project will also be developing its research into the immediate and mid-term behavioral response of elephants to translocation—when they are moved away from an area of human-elephant conflict (HEC).

YSD Governing Council Member Caroline Christine Russell said it was necessary to monitor what happens to these animals after they are translocated. She said: "In other parts of the world where translocation of elephants is practiced as a mitigating measure against HEC, scientists observed high death rates and competition for resources and space at the release site. Translocated elephants have also been observed travelling back to their capture sites or their original home range, hampering the original objective of translocating the animals in the first place."

Dr Campos-Arceiz said: "Peninsular Malaysia may become one of the last strongholds for Asian elephants in Southeast Asia. Approximately 40 per cent of the Peninsula is still covered by well-conserved forest and includes the protected Taman Negara National Park which is home to around 600 elephants, the largest elephant population in the region. With low human density, a very developed economy, and a functional Department of Wildlife and National Parks the long-term conservation of elephants in this part of the world depends completely on social and political will. With our project, we intend to contribute the know-how and provide data to aid the authorities to do an evidence-based elephant conservation."

A hundred years ago wild elephants on the Malay Peninsula could be

counted in their thousands—now, due to the loss of habitat, there are less than 1,500. Hunted for their tusks and stripped of their natural habitat the Asian elephant is listed as endangered by the International Union for Conservation of Nature. Agriculture, roads, building development and widespread persecution as a result of human-elephant conflict is leading to this rapid decline and fragmentation of their population.

Additional funding will help answer difficult questions

The new funding will enable MEME to buy additional high-sensitivity GPS satellite collars, VHF receivers and antenna as well as extra camera traps to film the elephants as they move about in the forest. Once a GPS collar is fitted the elephant's whereabouts can be tracked in the field or back at base on computer by simply logging into a server where the movement data is automatically stored.

Using molecular genetic tools MEME is hoping to delve even deeper into the secret life of the Malaysian elephant. Samples of DNA from elephant dung could help answer many questions about the ecology and behaviour of these wild elephants.

Due to their size elephants play a remarkable role in the dispersal of seeds across the Malaysian tropical rainforest. Seeds and seedlings found by searching through elephant dung will help establish a data base of plants which rely heavily on the largest beast in the jungle for their survival.

MEME is currently testing a drone equipped with high definition cameras aiming to map the elephant's habitat from the sky above and below the forest canopy. This could reveal even more about the secretive life of one of Malaysia's most elusive wild animals.

Dr Campos-Arceiz said: "This generous donation from Sime Darby will

help us develop a conservation strategy based on scientifically sound knowledge of elephant behaviour, ecology and a clear understanding of the underlying causes of human-elephant conflict. Our aim is to fit 50 elephants with satellite tracking devices to monitor how they are responding to the changes in their habitat, how they react to translocation—one of the practices used to move elephants away from areas of human-elephant conflict and what effect current conservation measures such as highway viaducts and wildlife corridors are having on the elephant population on the Malay Peninsular."

Fighting for survival

The Asian elephant has been listed as endangered in IUCN's Red List since 1986. They have been hunted and killed for their tusks to feed the ivory trade, live-captured for different purposes, killed for encroaching into villages and isolated due to habitat loss caused by human development. Not much is known about the Malaysian elephants—their basic ecology, behaviour, distribution, and most importantly, what happens to them due to conflict with humans and the effect of being translocated from one area to another.

MEME in action

Dr Campos-Arceiz and his team are already working in close collaboration with the Department of Wildlife and National Parks of Peninsular Malaysia. They have two permanent field houses in the Malaysian jungle's fringe, a field team of several research and field assistants are already monitoring the elephants fitted with the specially designed tracking collars.

The new funding will also help to support three PhDs specifically for Malaysian students to study elephant stress levels, the development of genetic molecular tools to study elephant populations in tropical

rainforests and the characterisation and mitigation of HECs. The research into HEC will also provide the opportunity for researchers to study elephant movement at Sime Darby Plantation's estates and assess if elephant encounters are problematic. Sime Darby Plantations have recorded elephant encounters since 2009 in several estates across Peninsular Malaysia.

Dr Campos-Arceiz said: "These scholarships will establish a pool of local experts in wildlife management. We also employ staff from the Orang Asli, the indigenous Malaysian communities, to tap into their expertise and knowledge of the elephants and their habitat in the rainforests of Peninsular Malaysia."

There are now 13 collared elephants roaming the Malaysian tropical rainforest. The aim is to have 50 and each collar is designed to degrade and fall off after three years. What this team of researchers can learn over that time could prove essential in the future survival of these elusive animals and establish a balance so man and elephant can learn to live alongside one another.

Professor Christine Ennew, Provost of The University of Nottingham Malaysia Campus said: "We are indeed delighted to work with YSD on this project and I believe with our global research expertise and experience we can ensure the successful delivery of this project. This is an excellent example of collaboration in research and knowledge transfer between a leading Malaysian company and an international university in conservation efforts which will ultimately benefit local communities."

The MEME project is one of YSD's many programmes under its Environment pillar which include the Restoration and Protection of Orang Utan Habitats in the Northern Ulu Segama Forest Reserve, Conservation of the Proboscis Monkey in Sabah, the Stability of Altered Forest Ecosystems (SAFE), UKM-YSD Chair for Sustainable

Development – Zero Waste Technology for the Palm Oil Industry, UKM-YSD Chair for Climate Change and the Borneo Rhinoceros Sanctuary.

A new series of videos has just been published on the work of MEME.

Provided by University of Nottingham