

IN the north of peninsular Malaysia, the body of an elephant calf lies on the side of the remote East-West Highway flanked by two wildlife refuges, Royal Belum State Park and Temengor Forest Reserve.

Stories like this are of increasing concern to wildlife experts. As economic development forges ahead in peninsular Malaysia, so do the dangers to the country's wildlife.

Roads such as the East-West Highway can pose huge challenges for landscape connectivity and the movement of wildlife.

Research on how this road affects elephant movements has led to calls from a team of wildlife conservationists at The University of Nottingham Malaysia Campus (UNMC) and other partner institutions to avoid any further expansion of this road.

They also want to see reduction and enforcement of speed limits as well as a limit to traffic volumes at night. The research team spent five years tracking 17 wild Asian elephants (*Elephas maximus*) to find out how their movements are affected by the road.

The research, titled "Why did the elephant cross the road? The complex response of wild elephants to a major road in Peninsular Malaysia", has been published in the academic journal *Biological Conservation*.

In an increasingly human-dominated world, there are few places left where large animals can live without coming into contact with people and the human footprint.

Roads lead to the destruction of vital habitats and are particularly a threat to megafauna – large animals that need very large home ranges to fulfil their



# Saving the gentle giants

Photo by MEME

ecological needs.

Research student Jamie Wadey and his team, led by Dr Ahimsa Campos-Arceiz from the School of Environmental and Geographical Sciences at UNMC, tracked the elephants using GPS-satellite collars programmed to record their location every two hours.

The modelling of elephant movements showed two important results – first, elephants cross the

road 80% less than would be expected if the road was not there and, second, they are attracted to the roadsides because of the amount of grasses and other early succession plants growing there.

Spending time by the road exposes elephants to dangers such as speeding vehicles and poaching. Two of the elephants in the study were poached for ivory and a third one survived a collision

with a vehicle.

"Understanding when and where elephants cross the road can inform the design of mitigation measures. There is strong and consistent evidence that the East-West Highway constitutes a barrier to movement for elephants," says Wadey.

"We found that most crossings took place at night. However, contrary to how elephants in Africa

behave, Asian elephants seem strangely attracted to the roadside – possibly due to the more open habitat as a result of heavy logging and abundance of food along the grass verges."

Since the completion of this study, the Malaysian Government has constructed one wildlife viaduct along the East-West Highway.

The research team is encouraging Malaysian authorities to monitor the use of the viaduct to understand its effectiveness in providing landscape connectivity for elephants and other wildlife.

The research team believes that the viaduct alone is not sufficient to promote connectivity in the landscape and should therefore be considered part of a suite of mitigation tools that include increased patrols and other anti-poaching efforts, habitat management to detract elephants from using roadsides for foraging, and public engagement to modify driver behaviour on roads crossing important wildlife habitats.

Dr Campos-Arceiz says, "We have described the complex ways in which a road affects the movements of elephants in this important landscape.

"Our results have direct policy and management implications for elephant conservation in peninsular Malaysia and other elephant range states."

This study was part of the Management and Ecology of Malaysian Elephants (MEME) – a joint research project involving the Department of Wildlife and National Parks Peninsular Malaysia and UNMC.

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