

# CAT

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# news



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# Malaysia, a leading country for green infrastructure

## A federal highway flies over wildlife at Sungai Yu Tiger Corridor

**In the Year of the Tiger 2010, while highest ranking politicians, the World Bank and large international NGOs were busy making political as well as financial commitments to the future of the tiger, the Malaysian Conservation Alliance for Tigers MYCAT worked at the grassroots to maintain the connectivity and functionality of the last critical linkage that connects the two largest tiger landscapes in Malaysia.**

Taman Negara National Park is with 4,343 km<sup>2</sup> the largest protected area in Malaysia. It is the only park larger than 1,000km<sup>2</sup> in Peninsular Malaysia that is protected by ground patrols and supported with a federal budget. A decade ago the park supported the largest tiger population in the region with an estimated population size of 70 to 112 tigers (Kawanishi & Sunquist 2004). It is therefore a conservation area with the highest prospect for the long-term survival of many of the endangered large mammals in Peninsular Malaysia. Building onto that benchmark research project, the current Sungai Yu (Yu River) Tiger Corridor project aims to enhance the Taman Negara tiger population from a landscape perspective.

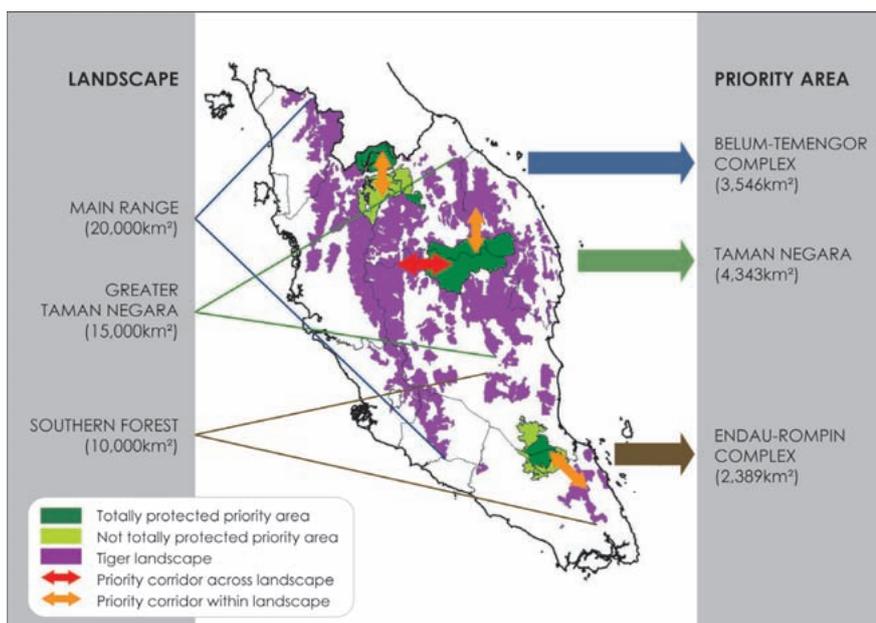
As the last linkage between the two largest tiger landscapes in Malaysia, namely, the Main Range and Greater Taman Negara, the National Tiger Conservation Action Plan (DWNP 2008) identified the Sungai Yu Ti-

ger Corridor as one of four priority corridors (Fig. 1). The wildlife dispersal between the two forest landscapes has been progressively threatened by land conversion for agriculture and highway construction. The fragmentation process of the two forest landscapes is nearly complete, leaving only a 10 km stretch of stateland forest surrounding the Yu River. Unlike national parks or forest reserves, the stateland forest has no protection status whatsoever and is either waiting to be awarded protection status or to be earmarked for forest conversion.

The ultimate goal of the Sungai Yu Tiger Corridor Project (2009-2015) is to secure, maintain and enhance the corridor for Taman Negara and Main Range tiger and other wildlife populations. This project implements three national policies, namely, the National Physical Plan (DTCP 2005), the National Tiger Conservation Action Plan (DWNP 2008), and the Central Forest Spine Masterplan (DTCP

2010). The on-going three-year research project (2009-2011) provides a science-based rationale for conservation interventions. It engages multiple stakeholders not only for greater protection of wildlife, but also for green infrastructure development that allows tigers to co-exist with humans. Green infrastructure is carefully designed to mitigate or minimise the unintended negative impacts of infrastructures on ecological processes including wildlife movements and populations. During the first year of the project, we studied the wildlife use of the corridor and conducted a prey occupancy survey in the 200 km<sup>2</sup> study area, encompassing Taman Negara to the east, stateland forests in the middle and forest reserves to the west. We found that the corridor was structurally still connected by forest cover for a 10 km stretch of the two-lane federal highway, but its functionality was threatened by road realignment (Fig. 2) and widening projects as well as high poaching pressure on wildlife (Fig. 3). An intensive prey occupancy survey on 1,053 sampling segments of 300 m each found tiger signs on only two segments and three months of camera-trapping yielded only one photo of a tiger, which was later suspected either poached or had moved out of the area due to high human disturbance. With such limited evidence, we were unable to confirm tigers' use of the corridor. Other mammals such as elephants, tapirs, wild boars, large Indian civets, and long-tailed macaques did cross the road. Some were killed by vehicles while doing so.

A preliminary analysis found that the tiger's primary prey, wild boar, was most widely distributed at 98% estimated occupancy, followed by tapir (73%) and barking deer (68%). No environmental covariates such as the distance from the highway or the level of protection influenced the distribution of the wild boar and tapir. These two large mammal species are not the prime target of hunters from the local Malay communities (Bidin 2010; TRAFFIC Southeast Asia unpublished data). But barking deer did not use areas closer to the highway. Gaur had a higher occupancy (42%) than sambar deer (15%) and both species did not use the least protected stateland forests. The status of the sambar deer was of great concern. Over 80% of the sambar deer signs were found in Taman Negara; almost 20% in forest reserves and none in the stateland forest. Subsequent camera-trapping and sign surveys as well as interviews with villagers confirmed that the species is



**Fig.1.** The priority areas and corridors identified in the National Tiger Conservation Action Plan (DWNP 2008). The red arrow indicates the Sungai Yu Tiger Corridor.

nearly locally extinct outside Taman Negara. Fifteen months of camera-trapping, extended into the second year in a greater area, yielded photos of a breeding gaur population but not a single one of the sambar deer.

On one hot day in early 2009, while the primary author was crossing the highway during a wildlife survey, two engineers from the highway upgrade project, escorted by officials from the Department of Wildlife and National Parks Peninsular Malaysia (DWNP), came looking for her. The federal highway was to be upgraded to a four-lane highway with guard rails and dividers, and the developers were in search of the exact location where wildlife were crossing. This was the beginning of nearly one year of discussions and negotiations between the road engineers and DWNP. It was however not the first time that DWNP was involved in advising road developers on green infrastructure.

To the north of Taman Negara, there is another critical wildlife corridor first identified in 2002 (Kawanishi 2002), and later adopted as a priority tiger corridor in 2008 (Fig. 1). In 2005, construction of the new federal highway severing the northern corridor was halted midway due to insufficient management considerations towards wildlife and environment in its Environmental Impact Assessment. The Public Works Department (PWD) then sought advice from DWNP on a wildlife mitigation plan. The Malaysian Treasury was not about to release funds for the continuation of the construction until DWNP was satisfied with the revised wildlife mitigation plan. Based on wildlife surveys and the terrain, DWNP proposed realignment of the road and seven viaducts (eco-bridges) that would allow wildlife movement under the road. The developer argued that the additional cost was too high. As a result of a series of consultations among various government agencies and private engineers on the project, DWNP settled with the final offer of three eco-bridges (Fig. 4), measuring up to 245m on the highway that was realigned farther from Taman Negara than initially planned, at the additional cost of MYR27million (USD9million) or 7% of the total project cost to the Malaysian Government (Chiew 2007).

At the final decision-making meeting, DWNP took a stand of "No more compromise" and fought for wildlife. This culminated in the statement made by the Deputy Director of PWD to the primary author who was in the room. He said, "Malaysia would like to be a green country with sustainable development



**Fig. 2.** The cleared stateland forest at the Sungai Yu Tiger Corridor for the road realignment project. The road is shifted closer to Taman Negara, leaving only 2 km of oil palm plantations in between.

like Japan. I can appreciate the benefit to the future generations. I hope that one day you will write about this green highway." The other policy which probably led to this statement was a 'Look East Policy'. Initiated by former Prime Minister Dato' Seri Dr. Mahathir Mohamad in 1982, through this policy Malaysia has strengthened its cooperation with Japan in the economic, industrial, technological training, academic, research and management fields, amassing 11,000 and counting, civil servants and University students sent to Japan for study and training (Sujata 2007). Subsequently, for the Sungai Yu Tiger Corridor, our actions were better coordinated through the MYCAT framework. First, the

data on wildlife use of the corridor and a report containing recommendations on wildlife-friendly highway development were submitted to DWNP. The recommendations included infrastructural mitigations that were needed at critical segments of the highway to allow wildlife to continue crossing the corridor. DWNP subsequently carried out all the consultations and negotiations with the road engineers.

In April 2009, following a press release by WWF-Malaysia on the road realignment project at the southern half of the corridor (WWF-Malaysia 2009), one of the leading English newspapers in Malaysia highlighted the danger of development in such an



**Fig. 3.** A leopard snared and dumped into a tributary of Yu River after being skinned and its front paws severed. It was discovered on 14 February 2010, the first day of the Year of the Tiger. Following this incidence, DWNP has strengthened the patrols in the area.



**Fig. 4.** R. Clements and his team study the effectiveness of the eco-bridge as a wildlife crossing structure by setting up camera traps in 2011 (Photo Rimba, myrimba.org/projects).

environmentally-sensitive area (Tan 2009) and raised public awareness on the issue. Following that, WWF-Malaysia was separately invited by the PWD to review the wildlife mitigation plan.

Later in that same year, TRAFFIC Southeast Asia organised a dialogue between MYCAT representatives and officials from the Road Planning Unit in the Ministry of Works. The aim was to raise environmental awareness among the road builders and to engage decision-makers on future development projects at critical conservation areas from the planning stage. Two of the tiger conservation priority corridors, Sungai Yu and Belum-Temengor, located at the northern end of the Main Range tiger landscape (Fig. 1), were used as case studies to highlight the unintended negative impacts of roads on wildlife. As a result of the discussion, we were invited to provide technical inputs to ensure that future road developments incorporate considerations for wildlife.

At the time of writing, the road realignment project is nearly complete. A bridge, longer than originally planned, over the main drainage (i.e., a downstream section of the Yu River) has been constructed to allow wildlife movement along the river. The earthworks for the road widening project covering the entire stretch of the corridor have begun. The highway plan includes a nearly 1km-long flyover at the most critical stretch including Yu River and two other eco-bridges up to 370 m at important wildlife crossing points. It will be the longest flyover in Malaysia built for the long-term benefit of wildlife. The cost of these additional mitigation works is unknown as it is absorbed into the entire budget of the road upgrade work.

Obviously there is a cost to every development. The cost here is additional expenses for green development. The benefit would be one which is immeasurable for wildlife. By bearing its cost, Malaysia showcases its commitment to biodiversity conservation and its futuristic vision for sustainable development. The benefit then is a regional one where Malaysia sets an example for wildlife-friendly green infrastructure through the implementation of national policies on sustainable development and biodiversity conservation as well as through multi-level conservation partnership. This example can and should be emulated by other tiger-range countries.

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