



Logging in Borneo, Indonesia. Creating new logging concessions, having more forest plantations, and providing alternative livelihoods to small-scale farmers could also be more effective for conservation, rather than reliance on protected areas alone, the study suggested. PHOTO: ROMAN CARRASCO

PROTECTED AREAS ALONE 'INEFFECTIVE' AT SLOWING DOWN FOREST LOSS IN INDONESIA, SAYS RESEARCH

Restricting road building, logging hot spots curb deforestation better: Study

SINGAPORE – While having protected areas in forests can help keep deforestation at bay and safeguard biodiversity, a new study by researchers at the National University of Singapore (NUS) has found this to be ineffective in Indonesia's biodiversity-focused protected areas. Instead the study suggests that monitoring and preventing road construction within protected areas as well as increasing control measures in illegal logging hot spots would be more effective.

Creating new logging concessions,

having more forest plantations, and providing alternative livelihoods to small-scale farmers could also be more effective for conservation, rather than reliance on protected areas alone, the study suggested.

The findings were published online in the journal *Global Environmental Change* last Friday.

The researchers studied the islands of Sumatra, Java, Kalimantan, Sulawesi and Papua, analysing deforestation patterns and the effectiveness of protected areas using remote sensing

maps of land use change from 2000 to 2010. They evaluated the influence of potential factors on deforestation and projected future deforestation.

Among their findings: Deforestation between 2010 and 2020 was found to be likely to occur close to areas that were deforested before 2010; the southern and western part of Kalimantan, north-western Sumatra and West Papua will see the greatest rates of deforestation.

While other categories of protected areas saw mixed results, re-

searchers found that areas set aside to protect biodiversity and where visitors were strictly controlled were ineffective at slowing down deforestation. High agricultural rent was found to lead to higher deforestation.

However, deforestation was found to be lower as the transport cost to the market increases, and for higher elevation. The probability of being deforested was also found to be lower within forest concessions or industrial timber plantations compared to other locations outside concessions.

"While it has been shown that deforestation rates are lower in protected areas than in certain non-protected areas in Indonesia, mounting demands for timber and agricultural products along with weak enforcement are changing this situation, resulting in illegal logging and agricultural encroachment within Indonesia's protected areas," said Assistant Professor Alex Cook of NUS' Saw Swee Hock School of Public Health. He co-led the study with Assistant Professor Roman Carrasco of the Department of Biological Sciences at the NUS Faculty of Science.

"Extensive deforestation in Indonesia is a cause for global concern as it contributes substantially to land-based global carbon emissions and potentially high rates of biodiversity loss," said Asst Prof Carrasco.

The research was conducted by Mr Cyrille Brun, a Masters student at the NUS Faculty of Science under the supervision of Asst Prof Cook and Asst Prof Carrasco.

As global rates of tropical deforestation increased over the last two decades, NUS said Indonesia accounted for about 61 per cent of the 32 million hectares of forest loss in South-east Asia between 1990 and 2010.