Tigers Cling To Survival In Sumatra’s Increasingly Fragmented Forests

Researchers on an expedition that tracked endangered tigers through Sumatran jungles for one year have found that tigers are now clinging to survival in low-density populations. The team's findings have renewed fears about the potential for extinction of these elusive predators.

Tigers on neighboring islands of Java, Bali and Singapore went extinct in the 20th century, prompting new anti-poaching efforts to prevent the same fate for the subspecies on Sumatra. Those efforts have been largely successful. The density of the tiger population in Sumatra has increased over last two decades — and their numbers are twice as high in unlogged forests, the study found. But the study also found that well-protected forests are disappearing and are increasingly fragmented: Of the habitat tigers rely on in Sumatra, 17 percent was deforested between 2000 and 2012, erasing any gains to the tigers' chance of survival. A leading cause of deforestation has been habitat destruction for oil palm plantations.

"Our results are a mixed bag," said lead author Matthew Luskin, who conducted the research for his graduate studies at the University of California, Berkeley. He is now a research fellow with the Smithsonian Institution and is based at Nanyang Technological University in Singapore. "The loss of key habitat is causing significant conservation challenges for Sumatra—and, in particular, for this critically endangered species."

The study will be published Dec. 5 in the journal *Nature Communications* and was funded by the National Geographic Society.

Obtaining information on rare, stealthy predators is not easy, especially in jungles. The researchers spent a year trekking through remote Sumatran forests, mounting hundreds of cameras that capture still photos and video whenever an animal passes. Individual tigers are identified by their unique pattern of stripes, allowing the researchers to track their movement.

With data from the cameras, the scientists calculated a Sumatran tiger's home range to be roughly 150 square miles, an area about the three times the size of San Francisco. This is much larger than tiger home ranges in other regions, such as India, and indicates they need larger reserves to survive.

The study found that tiger population densities are 47 percent higher in primary versus degraded (logged) forests, and that extensive clearing of pristine lowland forest has disproportionately reduced tiger numbers. This is no surprise: Between 1990 and 2010, Sumatra lost 37 percent of its primary
forest. As a result, tiger subpopulations also became significantly more fragmented, greatly increasing their threat of extinction in each individual forest, and as a species.

The research team combined their results with data from other scientists and estimated the number of tigers in each remaining forest in Sumatra. Researchers found there are now only two habitats large enough to host more than 30 breeding females, an indicator of viable tiger populations over the long term.

"The erosion of large wilderness areas pushes Sumatran tigers one step closer to extinction," Luskin said. "We hope this serves as a wake-up call."

"Safeguarding the remaining expanses of primary forests is now absolutely critical to ensuring tigers can persist indefinitely on Sumatra," said study co-author Mathias Tobler, of San Diego Zoo Global. The most famous of these areas is Gunung Leuser National Park, where organizations like the Leonardo DiCaprio Foundation work to prevent deforestation and tiger poaching. "Large-scale reforestation is unlikely," Tobler said. "If we are going to save Sumatran tigers in the wild, the time to act is now."

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ringing species back from the brink of extinction is the goal of San Diego Zoo Global. As a leader in conservation, the work of San Diego Zoo Global includes on-site wildlife conservation efforts (representing both plants and animals) at the San Diego Zoo, San Diego Zoo Safari Park, and San Diego Zoo Institute for Conservation Research, as well as international field programs on six continents. The work of these entities is inspiring children through the San Diego Zoo Kids network, reaching out through the internet and in children's hospitals nationwide. The work of San Diego Zoo Global is made possible by the San Diego Zoo Global Wildlife Conservancy and is supported in part by the Foundation of San Diego Zoo Global.

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